





A
DESCRIPTIVE CATALOGUE
OF
THE RAPTORIAL BIRDS
IN THE
NORFOLK AND NORWICH MUSEUM,
COMPILED AND ARRANGED
BY
JOHN HENRY GURNEY.

PART ONE :
CONTAINING
SERPENTARIIDÆ, POLYBORIDÆ, VULTURIDÆ.

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TO THE MEMBERS
OF THE
NORFOLK AND NORWICH MUSEUM,
THE FOLLOWING PAGES,
INTENDED TO ILLUSTRATE A PORTION OF THEIR COLLECTION,
ARE RESPECTFULLY INSCRIBED.

PREFACE.

In compiling the first portion of a Catalogue of the Raptorial Birds in the Norfolk and Norwich Museum (which I hope may at a future time be followed by the remainder,) I have considered it desirable, in the first place, to give a list of the several species contained in the collection in the order in which they are there arranged (that order being such as has appeared to me to be, on the whole, the most conformable to their natural affinities.) Secondly, to affix to each species the specific name to which it is by priority entitled, to which I have added one or more subsequent synonyms in order of priority, where I have thought the older in any respect objectionable. Thirdly, to give a list of the specimens of each species as well as of the localities from which each specimen has been obtained, when known, together with the name of the donor; or in the case of specimens which I have myself placed in the Museum (and to which the letter G is affixed,) the name either of the original collector or of the person from whom such specimens passed into my hands; both these names being given where I have been able to supply them. Fourthly, I have stated such particulars as I have been able to ascertain, respecting the geographical distribution, food, nidification, and habits of each species, and also as to the colour of the irides and of other parts of

which the natural hue cannot be accurately known by an examination of stuffed specimens only. Fifthly, although, as these pages are primarily intended for the use of visitors to the Museum, I have not thought it needful (with the above exception) to describe the form, size, or colour of the birds which may there be seen; I have given, for the convenience of readers at a distance, should these pages be perused by any such, a reference to one or more plates of each species and of its egg, in every instance in which I have been able satisfactorily to do so.

In conclusion, I have only to add that, as the following pages contain very little original matter, I have done my best to insure that their contents, if not original, should at least be accurate. With this view I have, as far as possible, abstained from inserting any statements of the correctness of which I have felt at all doubtful—and whenever I have deviated from this rule, I have indicated in the text any doubts which I have entertained.

I postpone till the completion of this Catalogue a reference to the authors from whose works I have drawn my principal materials, and also my acknowledgments to those ornithological friends to whose kind assistance I have been greatly indebted in studying the Natural History of the Birds of Prey, and in arranging the collection to which these pages are intended to refer.

FAMILY THE FIRST.

SERPENTARIIDÆ, or SERPENT-EATERS.

This family consists of two sub-families—each of which comprises a single genus.

The more typical of these, the Secretary (*Serpentarius*) constitutes without doubt the most abnormal genus of Accipitrine or Raptorial birds, exhibiting a very singular affinity to some non-aquatic genera of the order Grallæ, and especially to the genus *Cariama* of South America, on which account the family of *Serpentariidæ* may properly be placed at one extremity of the Raptorial series, which is thus naturally connected with the order Grallæ, whilst the opposite extremity of the series is similarly connected with the order Insesores by the family of *Strigidæ* or Owls, with which I propose to conclude the present catalogue.

SUB-FAMILY.

*SERPENTARIINÆ, or SECRETARIES.*Genus *SERPENTARIUS* (Cuvier.)**SERPENTARIUS REPTILIVORUS (Daudin.)**

SECRETARY SERPENT-EATER.

The Secretary-bird, as this species is frequently called, exhibits an affinity to the Grallatorial family, and especially to the *Cariama* of tropical America—which is not to be found in any other true Raptorial genus, and to which allusion has been already made in a preceding page. This affinity is chiefly apparent in the length of the legs in this species and in its great speed in running, as well as in its predilection for that mode of escape, when pursued or alarmed. With the exception of the length of the legs, the skeleton of this singular bird appears principally to indicate an affinity to the Vultures, while in the bare skin about the eye and cere, and also in some of its habits, it seems to approximate to some of the American *Polyborinæ*, which, like it (though in a minor degree), are both addicted to the destruction of reptiles, and are also possessed of much facility in running. The Secretary is an inhabitant of the continent of Africa, to which it appears to be entirely confined, as although Sonnini, the traveller and naturalist of the last century, figured a Secretary bird as found by him in the Philippine Islands, there seems to be no doubt that this is an error, no such bird having been observed in that locality by any subsequent traveller. In Western Africa, the only locality in which the Secretary has been observed (so far as I can ascertain) is the vicinity of the river Gambia, but in the southern and eastern parts of

the African continent its range is much more extensive, it being found in the colonies of the Cape of Good Hope and of Natal, in Zanzibar, Abyssinia, Kordofan, Nubia, and in Upper Egypt as far north as the ruins of Thebes, where it was observed by that enterprising traveller, the late Dr. Alfred Brehm. It should, however, here be stated that the Secretaries found north of the Equator are somewhat smaller and paler in their colouring than those obtained in more southern localities. This northern race, however, differs so slightly from the southern form that it can scarcely be considered as a distinct species, though it has been so described by some naturalists, and the synonyms of *Serpentarius Gambiensis* (Ogilby), and *Serpentarius Orientalis* (Verreaux), have been both conferred on it as specific names. The Secretary is a remarkably voracious feeder. Le Vaillant mentions that from the stomach of one that he shot, he took three serpents as long as his arm and an inch in thickness, eleven lizards of seven or eight inches in length, and twenty-one small tortoises of about two inches in diameter, besides a large quantity of grasshoppers or locusts, and other insects. The Secretary also feeds on rats and moles, and domesticated specimens (which are said not to be unfrequent in the yards of South African colonists) have been observed to devour young fowls. A dead quail is mentioned by Mr. Gordon Cumming as having been found by him in a Secretary's nest; and Mr. Ayres, of Natal, informs me that he took from the stomach of a Secretary "an adult yellow-breasted lark." In the colony of the Cape of Good Hope the Secretary is protected in consequence of its utility in extirpating noxious reptiles, as it habitually destroys and devours serpents of the most venomous character, and, it is said, of as much as six feet in length. The nest of this species is generally flat, and of about three feet in diameter, formed of sticks intermixed with earth, and lined with wool and feathers; the nest is permanent, but a fresh lining is added every year above the previous one; it is placed on the top of

high trees in some localities, but in others of a more desert character, in the centres of the large and thick bushes which are found on many of the sandy plains of Africa, and the new shoots of which are frequently observed to grow up round the nest, so as effectually to conceal it. The eggs, which are white, are generally two, but sometimes three in number. The shape of the egg indicates, by the proportionate narrowness of the smaller end, an affinity to those of several birds of the order Grallæ. It is said that the female alone incubates the eggs, that the young remain in the nest as much as six months after they are hatched, that during this period they are fed by the parent birds, and in the earlier portion of it by food regurgitated from the crop after the manner of the vultures. The Secretary is, I believe, the only Raptorial bird which is furnished with a bony protuberance on the inner side of the carpal joint of the wing, which is another indication of its propinquity to the Grallatorial order. The Secretary attacks the serpents on which it feeds by violent and powerful strokes of its foot, guarding itself meanwhile against their bites by spreading one of its wings before it as a shield; it frequently mounts in the air holding in its bill a snake which it has partially disabled by the blows of its feet, and which it finally destroys by dropping it from a height upon the ground. When the Secretary has vanquished a serpent too large for it to swallow whole, it stands upon the reptile's neck, and gradually devours it, commencing at the tail. It is worthy of remark that the Secretary appears never to molest the various small passerine birds which build in the same bush or tree that contains its nest, and which seem rather to seek than to avoid the proximity of so powerful a neighbour. The Secretaries are frequently found in pairs, but are not otherwise gregarious. On the approach of the nesting season it sometimes happens that two males fight vigorously for the possession of a female, striking each other vehemently and perseveringly with their wings, and continuing the

combat till one has been vanquished, and is compelled to abandon his claims to the disputed female, in favour of his more potent rival. The iris of the Secretary is grey in the immature and hazel in the adult bird, the bare skin adjacent to it of a yellowish flesh-colour, often tinged with orange, the cere yellow. The legs and feet are of a pale dull flesh colour, some times inclining to yellow. The eye in this species is remarkable for the thick row of eyelashes with which it is fringed.

It is singular that no very satisfactory figure of this well known species has yet been published; the best with which I am acquainted is that in Le Vaillant's "*Oiseaux D'Afrique*," pl. 25. There is also a tolerable representation of it in Lesson's "*Traité D'Ornithologie*," pl. 3; both these figures represent adult specimens.

An interesting illustration of the mode in which the Secretary carries a disabled serpent will be found in Harris' "*Game Animals of Southern Africa*," pl. 25.

Figures of the head and foot of the natural size are also given in Gray's *Genera*, pl. 11.

SPECIMENS OF *SERPENTARIUS SECRETARIUS*.

Skeleton	♂	.....	Natal	.....	(G) Mr. Ayres.
Do.	♀	.....	North-East Africa	...	(G) Zoological Society.
No. 1.		adult...	Gambia	.....	(G) United Service Museum.
No. 2.	♂	adult...	Nubia	.....	(G) Mr. Verreaux.
No. 3.	♂	adult...	Natal	.....	(G) Mr. Ayres.

SUB-FAMILY.

POLYBOROIDINÆ or *GYMNOGENES*.Genus *POLYBOROIDES* (*Smith.*)*GYMNOGENYS* (*Lesson.*)***POLYBOROIDES RADIATUS* (*Scopoli*)**

RADIATED GYMNOGENE.

In the instance of the *Gymnogenes*, it seems necessary to treat a single genus as forming of itself alone a separate sub-family, a distinction which, even if it rested on no other foundation, might, perhaps, in this case be sufficiently justified by one peculiarity which occurs in this species, and in no other bird with which I am acquainted—viz., the singular flexibility of the joint connecting the tibia and tarsus, which permits the latter bone to be thrown backward to such an extent as to give to the joint the appearance of being inverted by the position in which the tarsus is thus placed. The general character of the form and plumage of this bird, its general habits as far as they are known, and also the bare space which it exhibits between the eye and the bill, show a decided affinity between it and the Secretary. On the other hand it also bears, both in adult and immature plumage, considerable resemblance to some of the *Accipitrinæ*, especially to a hawk of tropical America, the *Ischnosceles gracilis*, and to the larger species of the African genus *Melierax*. The Radiated *Gymnogene* inhabits the African continent, where it has an extensive geographical range. In Western Africa it has been observed to extend as far northwards as the Gambia, and southwards as the Gaboon, and to occur in several intermediate local-

ities. In the south of Africa it inhabits the colonies of the Cape of Good Hope and Natal; whilst in the east it occurs in Abyssinia, Kordofan, and Nubia. The alternate black and white transverse bars on the abdomen, the tibiae, and the sides, which are usually so conspicuous in the adult of this species, are sometimes found on the tibiae only, and are there much narrower and less distinct than in the ordinary plumage of the bird. A female specimen in this state of plumage, which was described by Messrs. J. and E. Verreaux as a distinct species in the "Revue de Zoologie" for 1855, under the name of *Gymnogenys Malzacii*, is now in the Norwich Museum, and I believe those gentlemen continue to regard it as belonging to a distinct species. Its title to be so considered is a point which can only be satisfactorily settled by the examination of additional specimens; and in the mean while I have not thought myself justified in treating it as distinct from *Polyboroides Radiatus*; the example in question was obtained in Nubia, and stands No. 12 in the series of these birds in the Norwich Museum; another female specimen (No. 2 in our series), which was procured at Natal, also exhibits a similar state of plumage. Another, and, as it seems to me, a more distinct race of *Gymnogenes* inhabits the island of Madagascar, and has received the specific appellation of *Madagascariensis*, (*Gymnogenys Madagascariensis* of Lesson.) In the Madagascar specimens which I have seen, the transverse black and white bars on the under parts of the adult bird appear to be somewhat broader and more distinctly marked than in specimens from the continent of Africa; and the colouring of the plumage of the upper parts, and especially of the head and neck, is also of a paler and more delicate grey than in African examples. At the same time, in the case of the Madagascar race as well as in that to which Messrs. Verreaux have given the name of *Malzacii*, a comparison of more specimens than have hitherto been procured is highly desirable.

Mr. Ayres, of Natal, to whom I am indebted for several

specimens of this bird, informs me that it is a rare species in that colony, frequenting lands on which the grass has been recently burnt, "stalking over the ground like a bustard," and feeding on insects and small reptiles; the male specimen sent to me by Mr. Ayres (No. 1 in this series) contained the remains of a "blue-headed lizard." Another specimen dissected by the same gentleman, contained "small cameleons and lizards, swallowed whole." Dr. Alfred Brehm also found two lizards in the crop of one killed by him in the Sudahn. With regard to the singular flexibility of the joint connecting the tibia and tarsus, to which I have already alluded, Mr. Ayres remarks, "The legs of this bird bend backward at the knee in an extraordinary manner, very much as if they were out of joint: whether the bird can bend them back at pleasure I cannot say."

Dr. Hartlaub, in his work on the Birds of West Africa, thus refers to this peculiarity:—"With *Polyboroides typicus*, there exists, according to the communication of that experienced and reliable observer, Jules Verreaux, a very remarkable fact, viz., that the tarsi in the knee-joint are moveable towards the front from behind, a provision which, from the facility it affords the bird for drawing up frogs out of the marsh-holes by means of its talons, is of no little service to it. The exceedingly compressed toes of this species also enable it to introduce its long tarsi into the narrow crevices of the earth. Verreaux saw it twist and turn its legs in all directions in capturing its prey in marshy places."

Professor Owen, who has obligingly examined, at my request, a skeleton of this bird, which I obtained from Natal and which I have deposited in the British Museum, has favoured me with the following remarks bearing upon this subject:—"The peculiar power of reversing the ordinary position of the metatarsus in *Polyboroides radiatus* appears to depend, not on any modification appreciable in the configuration of the articular surfaces of the tibia and metatarsal bone,

but on the smaller size and less cuneiform shape of the fibro-cartilage attached to the inner side of the capsule of the joint and which is wedged in, in the Kite, Sparrow-hawk, and no doubt in most other Raptores, between the two bones at the back part of their joint. No doubt the lateral ligaments would present a correlated modification, but a dissection of the parts in the recent *Polyboroides* would be requisite to ascertain the precise condition of the soft parts of the joint with the modification of the tendons crossing it, connected with the peculiar extent of motion of the part. Certainly an inspection of the bones only, would never have suggested the possession of the faculty."

Mr. Ayres informs me that the eye in this species is very small and the iris a very dark brown approaching to black; that the tarsi and feet are a light bright yellow, and that the cere and bare skin adjoining the eye are also yellow. A similar description is also given by Dr. Alfred Brehm of the colour of these parts in the Sudahn specimen above referred to.

The late Dr. Vierthaler speaks of the skin round the eye as red, but states that this colour disappears immediately after death. With reference to this observation, Mr. Ayres remarks, "the natural colour of the skin is light yellow, but it sometimes happens if a shot strikes the neck, or if the bird falls from a considerable height, that the blood appears to rush under the skin and changes the colour to pink, which sometimes remains so till the bird is skinned, and sometimes disappears immediately."

The best figures of this species, with which I am acquainted, have been published by Sir Andrew Smith, in his "Zoology of South Africa," in which pl. No. 81 represents an adult, and pl. No. 82 an immature specimen. The head and foot of the natural size are figured in Gray's Genera, pl. 11.

The individual described by Messrs. Verreaux, under the specific name of "*Gymnogenys Malzacii*," is figured in the "Revue de Zoologie" for 1855, pl. 13.

A figure of an adult specimen of the Madagascar race, brought from that island by Captain Milius, will be found in Temminch's "Planches Coloriées," pl. 307.

It may be worth mentioning that the specimen No. 7 on the following list exhibits the curious *lusus* of one of the feathers on the nape of the neck being marked on one side of the shaft with transverse bars of black and white of a character similar to those on the feathers of the abdomen.

SPECIMENS OF *POLYBOROIDES RADIATUS*.

No. 1.	♂	adult... Natal	(G) Mr. Ayres.
No. 2.	♀	adult... Do.	(G) Do.
No. 3.	♂	adult... Do.	(G) Do.
No. 4.	♂	adult... Do.	(G) Do.
No. 5.	♀	adult... Do.	(G) Do.

(The sexes of the above five specimens were ascertained by Mr. Ayres on dissection.)

No. 6.		immature in change ... Natal	(G) Mr. Ayres.
No. 7.		adult... Ibadan, Western Africa ...	(G) Mrs. Hinderer.
No. 8.		adult... Do.	(G) Do.
No. 9.		adult... Bissao, Western Africa ...	(G) Mr. Verreaux.
No. 10.		adult... Do.	(G) Do.
No. 11.		immature..... Do.	(G) Do.
No. 12.	♀	adult... Nubia	(G) Do.

(The last-named specimen is the type of Mr. Verreaux's suggested species "*Gymnogenys Malzacii*," described in the *Revue de Zoologie* for 1855.)

FAMILY THE SECOND.

POLYBORIDÆ or CARACARAS.

This family consists of a group of birds inhabiting the continent of America, and more or less related on the one side to the smaller Vultures, and on the other to some of the genera of the *Milvine* and *Circæine* groups, and especially to the genus *Herpetotheres*, and also (as has been already mentioned) to the family of *Serpentariidæ*.

SUB-FAMILY.*POLYBORINÆ or CARACARAS.*

Genus *POLYBORUS* (*Vieillot.*)

POLYBORUS THARUS (*Molini.*)

BRAZILIAN CARACARA.

The Brazilian Caracara is especially distinguished from the other birds of this family by a singular peculiarity of the nostrils, which in this species are in the form of a crescent-shaped slit, whilst in all the other Caracaras they are in that of a circle, with a bony centre. In this species, and in the succeeding one (*Senex australis*), the crop is bare of feathers, a peculiarity which does not exist in the other Polyboridæ. The Brazilian Caracara is very generally found throughout the whole of South America, and also throughout the southern part of

North America, as far north as about the 30th degree of north latitude. It likewise inhabits Tierra del Fuego, extending as far south as Cape Horn, and is found in Cuba, and also in the small island of Aruba. This Caracara is a bird of an exceedingly omnivorous appetite, its food consists of carrion, both such as is found on land and such as is washed up on the banks of rivers or on the sea coast, and also of excremental refuse, of newly dropped lambs, and of various small mammalia. It also feeds on the feeblers Gallinaceous birds, especially Tinamous and young chickens, as well as on other birds that have been wounded, on birds' eggs, and on the smaller reptiles, especially serpents; in addition to which it frequently compels other carrion-eating birds to disgorge their food, which it then swallows, exactly as is done by the Parasitic Gulls. The principal victims of its tyranny in this respect are the smaller Vultures and Caracaras, and some of the Gulls. The Brazilian Caracara unites in small companies for the purpose of chasing Herons, Buzzards, and other large birds, probably with a similar predacious intent. The food of this species also occasionally includes slugs and worms, as well as insects, especially grasshoppers, and the larva of an *Oestrus*, which it frequently extracts from the backs of horses and oxen. The Brazilian Caracara forms its nest of dry thorny sticks, lined with hair, roots, grass, or moss; it usually builds on trees, preferring those covered with climbing plants; in the absence of trees, it nests on bushes or on low cliffs. The male bird is said to sit, during the incubation of the female, on a kind of platform formed on the outside of the nest. Its eggs are two in number, of a rufous violet colour, interspersed with darker marks of a similar, but deeper, tint. These eggs are said to be remarkable for the hardness of their shells.

The Brazilian Caracara is a gregarious species, and though sometimes found in pairs, more frequently occurs in larger numbers, often mixing with the Aura, the Brazilian and the Black Vultures, as well as with the Chimango and Yellow-

headed Caracaras, and, at certain seasons, with various species of Gulls. It is a bird of familiar habits, and readily seeks its food in the vicinity of human habitations. The Brazilian Caracara is said by Mons. D'Orbigny (in his work on the Birds of Cuba), "to have two very different cries; one which it utters in pursuit of other birds, and which is only an expression of rage; the other, a second cry, which it has in a state of repose, and may be rendered by the word Caracara. * * * This cry is almost always a song of love, being more repeated at that time than at any other." The cere in this species, and the adjacent bare skin, are of a carmine red tinged with yellow, the irides are hazel brown inclining to rufous, the legs and feet are yellow, and the crop, which (as has been already mentioned) is bare of feathers, partakes of the same tint.

The best representation of this species, with which I am acquainted, is that given in Audubon's "Birds of America," pl. 161; but the brown tints of the plumage in the specimens there figured indicate the drawing to have been taken from individuals which had not acquired their fully adult dress.

The egg of this species is figured in D'Orbigny's "Voyage dans l'Amérique Méridionale," pl. 1, fig. 5; another figure of this egg is given by the same naturalist in the Ornithology of La Sagra's "History of Cuba," pl. 32, fig. 14; and two others in Brewer's "North American Oölogy," pl. 2, figures 18 and 19.

SPECIMENS OF *POLYBORUS THARUS*.

Skeleton.....	Mexico	(G) Mr. Warwick.
No. 1. ♀ nearly adult		(G) Zoological Society.
No. 2. ♀ immature		(G) Mr. Lefevre.
No. 3. ♂ nearly adult ...	Orizaba, Mexico ...	(G) Mr. Botteri.
No. 4. ♂ adult.....	Ditto.....	(G) Ditto.

Genus SENEX (*Gray.*)SENEX AUSTRALIS (*Gmelin.*)

SOUTHERN CARACARA.

The Southern Caracara is found within very restricted geographical limits, which contrast curiously with the wide range of the preceding species.

Mr. Darwin, who describes this bird in the "Zoology of the Voyage of H.M.S. Beagle," under the synonym of "*Milvago leucurus*," thus defines its geographical distribution:—"The *Milvago leucurus* is exceedingly numerous at the Falkland Islands, and, as an old sealer who had long frequented these seas remarked to me, this Archipelago appears to be their metropolis. I was informed by the same authority that they are found on the Diego Ramirez Rocks, the Il Defonso Islands, and on some others, but never on the main land of Tierra del Fuego. This statement I can corroborate to a certain degree, as I never saw one in the southern part of Tierra del Fuego, near Cape Horn, which was twice visited during our voyage. They are not found on Georgia or on the other antarctic islands." Mr. Darwin adds the following remarks on the habits of this species:—"In many respects these hawks very closely resemble in their habits the *Polyborus Brasiliensis*.* They live on the flesh of dead animals, and on marine productions. On the Ramirez Rocks, which support no vegetation, and therefore no land animals, their entire sustenance must depend upon the sea. At the Falkland Islands they were extraordinarily tame and fearless; and constantly haunted the neighbourhood of the houses to pick up all kinds of offal. If a hunting party in the country killed a beast, these birds immediately congregated from all quarters of the horizon, and, standing on the ground

* Mr. Darwin refers, under the name of *Polyborus Brasiliensis*, to the Brazilian Caracara, which I have designated in these pages by the prior synonym of *Polyborus tharus*.

in a circle, they patiently awaited for their feast to commence. * * * They readily attack wounded birds. One of the officers of the "Beagle" told me he saw a Cormorant in this state fly to the shore, where several of these Hawks immediately seized upon it and hastened its death by their repeated blows. I have been told that several have been seen to wait together at the mouth of a rabbit hole,* and seize on the animal as it comes out. * * * The "Beagle" was at the Falkland Islands only during the early autumn (March), but the officers of the "Adventure," who were there in the winter, mentioned many extraordinary instances of the boldness and rapacity of these birds. The sportsmen had difficulty in preventing the wounded geese from being seized before their eyes; and often, when having cautiously looked around, they thought they had succeeded in hiding a fine bird in some crevice of the rocks, on their return they found, when intending to pick up their game, nothing but feathers. One of these Hawks pounced on a dog which was lying asleep close by a party who were out shooting; and they repeatedly flew on board the vessel lying in the harbour, so that it was necessary to keep a good look-out to prevent the hide used about the ropes being torn from the rigging, and the meat or game from the stern. They are very mischievous and inquisitive; and they will pick up almost anything from the ground. A large black glazed hat was carried nearly a mile, as were a pair of heavy balls used in catching wild cattle. Mr. Usborne experienced during the survey a severe loss in a small Kater's-compass, in a red morocco case, which was never recovered. These birds are, moreover, quarrelsome and extremely passionate; it was curious to behold them, when impatient, tearing up the grass with their bills from rage. They are not truly gregarious; they do not soar, and their flight is heavy and clumsy. On the ground they run with extreme quickness, putting out one leg before the other

* The rabbits of the Falkland Islands here referred to by Mr. Darwin, are descended from English rabbits, which have been turned loose on the islands.

and stretching forward their bodies, very much like pheasants. The sealers, who have sometimes, when pressed by hunger, eaten them, say that the flesh when cooked is quite white, like that of a fowl, and very good to eat—a fact which I (as well as some others of a party from the “Beagle,” who, owing to a gale of wind, were left on shore in Northern Patagonia, until we were very hungry) can answer for is far from being the case with the flesh of the *Carrancha*, or *Polyborus Brasiliensis*. It is a strange anomaly that any of the *Falconidæ* should possess such perfect powers of running as is the case with this bird, and likewise with the *Phalcobænus montanus* of D’Orbigny. It perhaps indicates an obscure relationship with the Gallinaceous order—a relation which M. D’Orbigny suggests is still more plainly shown in the Secretary Bird, which he believes represents in Southern Africa the *Polyborinæ* of America. The *Milvago leucurus* is a noisy bird, and utters several harsh cries; of which one is so like that of the English Rook, that the sealers always call it by this name. It is a curious circumstance, as shewing how, in allied species, small details of habit accompany similar structure, that these hawks throw their heads upwards and backwards in the same strange manner as the Carranchas (the Tharu of Molina) have been described to do.”

The following particulars respecting the nidification of this species are extracted from a very interesting paper on the Birds of the Falkland Islands, contributed by Capt. C. C. Abbott to the third volume of the “Ibis:”—“This is one of the commonest birds in East Falkland; one or two of their nests are sure to be found near a Penguin Rookery. During an expedition I made to the North Camp in December, 1860, I found at least fifteen nests along the cliffs of the north shore, all these had two young ones in them covered with down of a light yellow colour. The nest is generally composed of the dead fibres of the tussac grass, and frequently has some sheep’s wool in it. The eggs are laid the first week in November, and

are generally two, sometimes three, in number. In a nest that I once robbed of three eggs, on going to it again about a week later, I was surprised to find two more laid, one of which was a very light coloured one. * * * * I once had my cap knocked off by this bird while taking its eggs, and had it not been for a friendly piece of tussac growing near, I should have fallen into the sea from the perpendicular cliff where the nest was situated."

The iris in this Caracara is dark brown, the cere, legs, and feet are a bright lemon yellow, and the bare skin of the crop is of the same colour, but paler and not so bright. In immature birds the cere and feet are of a slaty colour.

This species is well figured in Temminck's "Planches Coloriées," plates 192 and 224; the first of these plates being the figure of the adult, and the second of the immature bird.

The egg of this species is figured in the "Ibis," vol. 2, pl. 1, figure 1.*

SPECIMENS OF *SENEX AUSTRALIS*.

Skull (with legs & feet)...	Falkland Islands	(G) Mr. Gould.
No. 1. adult.....	Falkland Islands	(G) Mr. Warwick.
No. 2. immature .....	.....	(G) Zoological Society.
No. 3. immature	East Falkland Islands.....	(G) Zoological Society, collected by Mr. Darwin.

* Figure 2 of the same plate, which is given as a variety of the egg of this species, is in fact a variety of the egg of *Cathartes Aura*.—Vide page 432 of the same volume.

Genus *PHALCOBÆNUS* (*D'Orbigny.*)

***PHALCOBÆNUS MEGALOPTERUS* (Meyen.)**

PHALCOBÆNUS MONTANUS (*D'Orbigny.*)

MOUNTAIN CARACARA.

The Mountain Caracara is found in Chili, and, according to Mons. D'Orbigny, also occurs in Peru and Bolivia—inhabiting the Pacific side of the range of the Andes and the adjacent table lands. It is a much less numerous and a somewhat less familiar bird than the *Polyborus tharus*, though, like that species, it feeds on carrion, and is also attracted by the broken food and other refuse to be found near human habitations, often frequenting the vicinity of the huts of the mountain shepherds in quest of such aliments. The Mountain Caracara is said to be destructive to very young lambs, and also to the newly-born young of the Llama; it likewise feeds on reptiles and worms, for which it searches between the stones on the mountains. When attracted by a common prey, these birds are seen in small companies, but at other times in pairs. This species is said to lay three eggs on the bare rock, but choosing a situation sheltered from the wind. I am not acquainted with the colouring of the egg. The cry of this Caracara is described as piercing and disagreeable. The irides in this species are brown; the cere and the adjacent bare skin are, in the adult birds, a bright orange; the legs and feet orange yellow; in the immature bird the colouring of all these parts is much less bright and vivid.

This species, both in its adult and in its immature plumage, is well figured in D'Orbigny's "*Voyage dans l'Amérique Méridionale*," pl. 2.

SPECIMENS OF *PHALCOBÆNUS MEGALOPTERUS*.

- | | | | | |
|-------------------------------|---|---------------|-----|------------------------------|
| No. 1. ♀ by dissection, adult | { | Western South | { | (G) Zoological Society, from |
| (with sternum)... | | America ... | | the Knowsley Collection. |
| No. 2. nearly adult..... | | Chili | (G) | M. Verreaux. |

PHALCOBÆNUS CARUNCULATUS (Des Murs.)**CARUNCULATED CARACARA.**

The Carunculated Caracara, so called from the wrinkled character of the skin of the throat and the adjacent parts, was first described by Mons. Des Murs, in the *Revue de Zoologie* for 1853, p. 155. This species is an inhabitant of the mountainous table lands of Ecuador, and the only information I possess respecting its habits, is that sent home by Mr. Fraser (by whom the specimens in the Norwich Museum were collected) and published by Mr. Selater in the "Proceedings" of the Zoological Society for 1858, p. 555. This bird is there referred to under the erroneous appellation of *Milvago megalopterus* (Meyen), in the following terms:—"Found in pairs on the plains; stomachs contained maggots, wheat, and vegetable matter; said to be good eating. In Ambato I saw two on the roof and one at the door of a mud hut." Mr. Fraser also states that "the irides are hazel, the skin of the chin and throat wrinkled, and, together with the face and cere, deep orange."

An adult specimen of the Carunculated Caracara is figured in the "Ibis," vol. 3, pl. 1.

SPECIMENS OF PHALCOBÆNUS CARUNCULATUS.

- | | | | | | | |
|--------|---|-------|-------|-----------------------------|-------|-------------|
| No. 1. | ♂ | adult | ..... | Above Punim, Ecuador | ..... | Mr. Fraser. |
| No. 2. | ♀ | ditto | ..... | Ditto | ..... | Ditto. |
| No. 3. | ♀ | ditto | ..... | Mountain Pichincha, Ecuador | .... | Ditto. |

Genus *MILVAGO* (Spix.)

MILVAGO CHIMANGO (Vieillot.)

CHIMANGO CARACARA.

The Chimango Caracara is generally spread over the plain countries of South America to the southward of the sixteenth degree of south latitude, and is also found in Tierra del Fuego. Mr. Darwin is, however, of opinion that there is a specific distinction between the Chimangos found in Chili, Southern Patagonia, and Tierra del Fuego, and those found in other parts of South America. I have not had the opportunity of examining a sufficient number of specimens to enable me to offer an opinion on this point. The Chimango feeds on carrion, and frequently picks up small fish accidentally left on the sea beach, or on the borders of lakes; broken remnants of human food are also acceptable to this bird, and his omnivorous appetite does not refuse even bread when thus thrown out to him. This species is said to be destructive to young chickens, and also to feed on the larvæ of insects, and on earthworms, in quest of which he has been observed to follow the plough, and even to pull up and examine the tubers of the potato. The Chimango, with the exception of being a more sluggish bird, has very much the habits of the Brazilian Caracara, with which (though not otherwise gregarious) it frequently associates; it does not, however, attempt to imitate its more powerful congener in robbing other birds of their food. It is worthy of remark, that the Chimango is accustomed to dust itself by scratching the soil and rolling itself upon it, after the manner of the Rasorial birds. The nest of this species is large for the size of the bird; it is generally composed of thorns and roots, and is placed on trees or thick bushes. The eggs are five or six in number, of a rufous cream colour, marked towards the larger end with darker spots and patches, which also partake of a rufous tint. The cry of the Chimango is a shrill

scream frequently repeated. The irides in this species are hazel brown, the cere a dull pink, and the legs and feet a bright yellow. Specimens found in Chili are said to have light brown or grey legs; this variation may, however, only arise from a difference of age in the individual specimens described.

This species is well represented in Gray's "Genera of Birds," pl. 5; the egg is figured in D'Orbigny's "Voyage dans l'Amérique Méridionale," pl. 2.

SPECIMENS OF *MILVAGO CHIMANGO*.

No. 1.	adult.....	Chili	(G) Mr. Warwick.
No. 2.	immature ...	Ditto	(G) Ditto.
No. 3.	♂ immature ...	Buenos Ayres	(G) Mr. Verreaux.

MILVAGO CHIMACHIMA (Vieillot.)

MILVAGO OCHROCEPHALUS (Jardine.)

YELLOW-HEADED CARACARA.

The Yellow-headed Caracara inhabits most of the northern and central countries of South America, extending as far northward as Guiana, and as far southward as the north-eastern part of La Plata. It is said chiefly to frequent pasture lands, but appears to prefer such as are in the vicinity of human habitations; it is not only a less widely diffused, but also a less numerous, bird than the preceding species. The food of the Yellow-headed Caracara consists chiefly of carrion, small reptiles, snails, and insects, especially those which it procures from the backs of cattle; it also scratches up and devours the eggs of the turtle and iguana, although buried in the sand by the parent reptile at a depth of as much as eight inches below the surface. This Caracara has the singular habit of alighting upon horses and other beasts of burthen, whose backs have been galled, and tearing open the partially healed cicatrices that have been thus formed upon them; the animal attacked being

only able to get rid of its tormentor by rolling on the ground, or by taking refuge among thick trees or bushes. This species has the power of elevating the feathers on the back of its head, so as to form two separate tufts. I am not aware that the nidification of the Yellow-headed Caracara has yet been ascertained with certainty; but D'Azara relates that he frequently observed a pair of old birds of this species accompanied by a single young one, which they fed for several months after it had left the nest. D'Orbigny was informed, during his travels in South America, that this species constructed a nest similar to that of the Chimango, and laid about the same number of eggs. The Yellow-headed Caracara is not gregarious; its cry is said much to resemble that of the preceding species. The irides in this bird are whiteish, and the bare space around the eye has a slight tint of rose colour; the tarsi are a pale yellow. It may, in conclusion, be desirable to add that the name of *chimachima*, originally given to this species by D'Azara, appears to be objectionable, as, according to the observations of D'Orbigny, that name is applied by the inhabitants of the banks of the Rio de la Plata to its congener, the *Milvago chimango*.

Tolerable figures of the adult of this species are given in Jardine and Selby's "Illustrations of Ornithology," pl. 2, and in Lesson's "Compléments de Buffon," pl. 18; also in Spix's "Avium species novæ," pl. 5. Plate 4 of the last-named work represents this species in immature plumage.

SPECIMENS OF *MILVAGO CHIMACHIMA*.

No. 1.	♂	adult.....	(G) Mr. Verreaux.
No. 2.	♀	nearly adult	(G) Mr. Warwick.
No. 3.	♀	immature ... Bogota.....	(G) Ditto.
No. 4.	♂	adult..... Bahia	(G) Mr. Gould.
No. 5.	♂	immature ... Ditto	(G) Ditto.

Genus *IBYCTER* (Vieillot.)**IBYCTER ATER** (Vieillot.)

BLACK CARACARA.

This species is a native of tropical South America, extending across the continent from Quito westward to Guiana and Brazil eastward. I am not acquainted with the exact limits of its range to the south and north, neither have I any definite information as to its habits, except the following which is given in Vieillot's "*Galerie des Oiseaux*":—"It feeds on fruits, seeds, and sometimes on insects, such as ants, grasshoppers, &c. Being but little wild, it is easily approached; it nests on trees, and lays from three to four eggs, which are round and white."

This species is figured in pl. 5 of the above-mentioned work, and also in Temminck's "*Planches Coloriées*," pl. 37 and 342.

SPECIMENS OF *IBYCTER ATER*.

No. 1.	♂ adult.....	(G) Mr. Verreaux.
No. 2.	nearly adult... River Amazon	(G) Mr. Stevens.
No. 3.	adult Quito	(G) Mr. Gould.

IBYCTER AMERICANUS (Boddaert.)*IBYCTER FORMOSUS* (Latham.)

RED-THROATED CARACARA.

This species, which is decidedly a forest bird, is an inhabitant of tropical America, extending on the eastern side of South America as far south as the fifteenth degree of south latitude, while on the western it has been observed as far

south as the neighbourhood of Guyaquil; it extends as far northward as the Western Guatemala; and is also found in the island of Trinidad. It is said by some of the older naturalists to feed in part on fruits; but this is denied by Prince Maximilian of Wied, who considers that its food consists chiefly of insects, especially maggots, bees, "maribondos" ants, and grasshoppers.

M. Ogier de Gambaud, who observed it in Guiana, (where, however, he states it to be rare,) speaks of its feeding on birds, lizards, and small serpents. The nest of this species is said to be built on trees, and its eggs to be white, and from three to five in number. On this head, however, further information and confirmation are desirable. The Red-throated Caracara is sometimes found singly, sometimes in pairs, and at other times in companies. The cry of this Caracara is very loud, and has been compared in its tone to the cluck of a hen when about to lay; the notes are, however, said to have a plaintive tone, beginning in a high and ending in a lower pitch.

Mr. Osbert Salvin, who observed this bird in Guatemala, informs me that a specimen, which he watched, uttered its cry while sitting on the dead branch of a tree, and that it opened and shut its tail with a sort of jerk, as it gave vent to each note. Prince Maximilian states that, in the adult male of this species, the cere is blue, the irides a rich but rather a dark red, the bare skin on the throat a vermilion colour, and the legs and feet of the same colour tinged with orange. In the immature birds, and also in the adult female, those colours are similar, but somewhat less bright.

Mr. Fraser, who met with this species at Gualaquiza, in Ecuador, made the following note respecting it, which I transcribe from the "Proceedings" of the Zoological Society for 1858, p. 451:—"Mandibles yellow, cere blue, face, throat, legs, feet, and irides deep red. In the gizzard, beetles and other insects. A very active noisy bird. Having killed one out of

three together, among the high trees in the deep forest, the others made a great noise, screaming and crying round about; the second fell mortally wounded, and his cries made the third an easy prey."

This species is figured in Buffon's "Planches Enluminées," pl. 417.

SPECIMENS OF *IBYCTER AMERICANUS*.

No. 1.	♂	.....	Brazil	(G) Mr. Warwick.
No. 2.	♀	.....	Ditto	(G) Mr. Parzudaki.
No. 3.	♂	.....	Gualaquiza, Ecuador	(G) Mr. Fraser.

FAMILY THE THIRD.

VULTURIDÆ.

The birds of the family of *Vulturidæ*, or Vultures, are scattered over the whole of the American continent, except the most northerly portions of North America ; they are also found throughout Africa and in the southern countries of Europe and of Asia.

They are most numerous in warm climates, and are there very serviceable ; most species of the family feeding chiefly upon various animal substances which would become noxious if left to the process of gradual decay.

This family is divisible into four sub-families, of which the two first, *Cathartinæ* and *Vulturinæ*, contain the most typical species and the largest number of them.

The other sub-families, *Gypohieracinæ* and *Gypætinæ*, are much less typical and also much less numerous.

The typical Vultures are chiefly characterized by their carrion-feeding habits ; by their heads and necks being more or less denuded of feathers, and by the comparative want of prehensile power in their feet and claws, in consequence of which they seldom remove their food from the place where they find it, but devour it on the spot, and nourish their young by regurgitation from the crop.

Vultures are frequently in the habit of soaring at great altitudes, but the larger species can only rise from the flat surface of the ground by first running for some yards and

flapping their wings whilst so doing. It has been observed of several species of Vultures that when soaring, their wings appear to be perfectly free from any flapping or even any vibratory motion; when this is the case, the bird occasionally extends and retracts its neck, which may perhaps be connected with inhaling air to fill the air-reservoirs, with which the sternal regions of these birds are abundantly supplied, and which doubtless contribute to aid their great soaring powers. The Vultures are also remarkable for their powers of discerning their prey at very great distances; and it has long been a disputed point whether this power is due to the sense of smell, or to that of sight. Many observations and experiments have been made with the view of setting this question at rest, especially on the two commonest American species—the Black Vulture and the Aura. The result of these observations appears to indicate—1st, that Vultures are often guided to the vicinity of their prey when soaring at a great distance from it, by observing the evolutions of other Vultures or carrion-feeding birds, which may happen at the moment either to be flying at a less elevation, or from some other cause to be nearer to the spot where the carcase is lying. 2nd, that at a moderate distance, Vultures have the power of perceiving and appreciating the effluvium evolved from dying animals and from decomposing carcases, and that they are thus frequently guided to the vicinity of the body from which such effluvium arises, even though it be concealed from sight, and though the effluvium given out may not be perceptible to the human organs of scent. 3rd, that this power appears to take effect rather at a short distance from the carrion than in close propinquity to it, and that, consequently, when the prey is concealed from view, the Vultures, although attracted by this faculty to the vicinity of the carcase, usually appear unable to ascertain its exact situation and position without the aid of sight; this last result is, however, less uniform than the two preceding ones; one, if not more, instances having occurred of the American Black Vulture

(*Cathartes atratus*) succeeding in discovering hidden food, apparently by the sense of smell alone.

Another peculiarity which is noticeable in many of the Vultures is their great tenacity of life, of which several singular instances are recorded.

The bare skin on the head and neck of the Vultures is of various colours in different species, and in some, the tints which are on these parts not only differ in specimens of different ages, but also vary in conformity with the passions of the bird, with the season of the year, or with the degree of repletion of the Vulture's stomach.

SUB-FAMILY THE FIRST.

CATHARTINÆ or VULTURES of the NEW WORLD.

The American Vultures may be considered as forming of themselves a well-defined sub-family, distinguished from all the Vultures of the Old World by the absence of any septum between the nostrils, the effect of which is that the two nostrils present at their lower extremity the appearance of a single perforation passing transversely through the cere covering the posterior portion of the upper mandible.

Genus GYPARCHUS (*Gloger.*)

GYPARCHUS PAPA (Linnæus.)

KING VULTURE.

There is probably among the whole tribe of Raptorial Birds none which can compare for beauty of colouring with the present species. The elegant fawn tints of the plumage of the adult remain to a considerable degree unimpaired when the bird is stuffed; but the magnificent orange, purple, and crimson colouring which is so remarkable on the skin of the neck and head of this Vulture (when mature) disappears rapidly after life has ceased, and can only be partially represented in preserved specimens. The King Vulture inhabits the tropical portions of the American continent, extending southwards to about the twenty-eighth degree of south latitude; and as far northwards as Mexico, it does not appear, however, to occur to the westward of the chain of the Andes.

The King Vulture is not, by any means, a familiar species, and it appears chiefly to frequent those districts that are covered with the swampy forests, which form its favourite abode. Its food consists of carcases of various animals, and occasionally of fish that are left dead by the partial drying up of inland waters. It also devours small reptiles, and is destructive to newly-dropped calves and lambs, besides sometimes feeding on excrementary substances. These Vultures generally live in pairs, but are occasionally seen in companies of four or five when attracted by food. When a Vulture of this species alights upon a carcase, it is said that the Aura and Black Vultures withdraw till it has satisfied its appetite; and from this circumstance it is popularly designated as the King of the Vultures.

The eggs of this Vulture are white, two or three in number, and are said to be usually laid in the interiors of hollow trees. The legs and feet of the King Vulture are black, tinged with grey. The cere and bare skin on the head and

neck are of a dark lead colour in the young bird, which subsides as its age increases (first disappearing from the sides of the neck), and by the time when the bird has obtained the fleshy caruncles on the fore part of the head—which mark the adult state, and which are not perfected till its fourth year—the cere, together with the bare skin of the head and neck, and the caruncles already referred to, have assumed the rich and mingled tints of orange, crimson, purple, and brown, to which I have previously alluded, as a distinguishing characteristic of this Vulture. The iris in this species is a pure white in adult birds, and a yellowish grey in those which are immature.

The representations which have been published of the King Vulture (so far as I am acquainted with them) very inadequately pourtray the beauty and singularity of colour by which this species is distinguished.

Perhaps one of the best figures of the adult King Vulture is still that which was published more than a hundred years ago in Edwards' "Natural History of Birds," pl. 2.

Another representation, which may be also mentioned as correct, is that given in pl. 5, fig. 1, of Lesson's "Traité d'Ornithologie."

A tolerable figure of this species in change from the immature to the adult dress is contained in Le Vaillant's "Oiseaux d'Afrique," pl. 13.

The King Vulture, in its unchanged immature plumage, is figured by Spix in his "Avium Species Novæ," pl. 1.

SPECIMENS OF *GYPARCHUS PAPA*.

Skeleton ♂ adult.....	Presented by Edward Fountaine, Esq.
Sternum ♂ adult.....	Ditto.
No. 1. adult.....	Guatemala (G) Mr. Skinner.
No. 2. ....immature	(G) Mr. Jamrach.
No. 3. immature in change	(G) Mr. Lefevre.

Genus **SARCORAMPHUS** (*Duméril*.)

SARCORAMPHUS GRYPHUS (*Linnaeus*.)

CONDOR VULTURE.

The Condor, though bearing some general resemblance to the preceding species, differs from it not only in colour and by its much greater size (being the largest of all the birds of prey) but is also distinguished by other characteristics, and especially by that of the remarkable comb with which the head of the adult male Condor is furnished, but which is wanting in the female. This peculiarity, together with the comparative non-development of the hind toe (by which the foot of the Condor is rendered less prehensile than that of any other Vulture), marks this species as generically distinct from all others of the American sub-family.

The Condor chiefly inhabits the chain of the Andes and the countries on the Pacific coast of South America. It is also found over the whole of Patagonia, extending as far southward as the straits of Magellan, whilst its northward range extends, at all events occasionally, to the south-western parts of North America; though I am unacquainted with the precise limit of its most northerly occurrence. The food of the Condor consists of every description of dead carcase which it can discover in the mountain districts, which it usually frequents; and when it descends to the sea coast, as it frequently does, it also feeds greedily on the remains of seals, on dead fish, and even on mollusca. Condors have also been sometimes observed at sea feeding on the floating carcases of dead whales. The Condor also destroys and devours young and wounded animals of various descriptions, and when pressed by hunger does not refuse excrementary substances. The Condors usually associate in pairs, but sometimes in flocks of from twenty to thirty, especially when roosting, or when attracted by food. This species forms little or no nest, but lays its two white eggs in the inaccessible ledges and hollows of the mountain cliffs. When gorged with

food, the Condor finds some difficulty in its first rising into the air; so much so, indeed, that on such occasions it is not unfrequently lassoed or otherwise captured. Many of the ancient aboriginal inhabitants of those countries in which the Condor is most plentifully found, appear by the remains of their sculptured monuments and, by the accounts of early Spanish writers, to have associated this bird with the worship of the Sun, and to have worn Condor's wings on their shoulders at their festivals in honour of that luminary, as their descendants are said still to do when they take part in certain religious processions connected with the ceremonial of the Roman Catholic Church.

The legs and feet of the Condor are black, with a slight admixture of grey; the cere is of a similar tint, as are the naked skin on the head and neck, and the comb of the male bird. The blackish tint of the head and neck is, however, slightly varied by occasional traces of a livid flesh colour, especially about the lower part of the neck. The irides in the adult male are of a pale brown, and in the adult female of a beautiful carbuncle-red; a singular difference between the sexes, and one which, as far as I know, has no parallel in any other Vulture. The irides in the young birds of both sexes are of a dark brown.

In Temminck's "Planches Coloriées" three representations are given of this species: pl. 133 contains the figure of the adult male, pl. 494 the head and neck of the same on a larger scale, and pl. 408 the figure of an immature female.

The immature male is figured in Bonaparte's "American Ornithology," vol. 4, pl. 1, and the adult female in Shaw's "General Zoology, Aves," pl. 3.

SPECIMENS OF *SARCORAMPHUS GRYPHUS*.

No. 1.	♂ adult.....	Western South America	(G) Mr. Warwick.
No. 2.	♀ adult.....	Ditto	(G) Ditto.
No. 3.	♂ immature ...	Presented by the Directors of the Crystal Palace Company.	
No. 4.	♀ immature ...	(G) Mr. Leadbeater.	

Genus CATHARTES (*Illiger.*)

CATHARTES CALIFORNIANUS (Shaw.)

CALIFORNIAN VULTURE.

This magnificent Vulture is a species of somewhat restricted geographical range, being limited to the Rocky mountains and to the country intermediate between that range and the coast of Western North America; it extends as far southwards as the southern part of Mexico, and as far northward as Oregon; where, however, it is said only to appear as a summer visitor. The Californian Vultures feed on carcasses of animals which have been accidentally exposed, or have died, in unfrequented situations. They also attack wounded and young animals, and have been observed to associate, to the number of six or seven, to attack a calf, and thus to succeed in destroying it, notwithstanding the efforts of the parent cow for its protection. This species often frequents the sea coast in quest of dead seals or whales which may have floated to the shore, or may have been left there by their captors after having been deprived of their skin or blubber. It is also very fond of dead fish, and is said not unfrequently to steal the salmon and trout caught by the Indians in the mountain rivers, and exposed upon the banks to dry. When frequenting the coast it also feeds on mussels, the partially digested shells of which have been taken from its stomach. The Californian Vulture does not appear to be a gregarious species, except when collected in search of food, on which occasions considerable numbers are frequently attracted together by a large and tempting carcass. This Vulture is remarkable for the great height to which it occasionally soars, and which is computed sometimes to reach an altitude of sixteen thousand feet. I am indebted for many of these particulars, and also for the fine specimens in the Norwich Museum, to my friend Alexander S. Taylor, Esq., of Santa Barbara, who is

a very intelligent and assiduous observer of the Ornithology of California, and who has published, in the San Francisco Herald of the 6th May, 1859, the following interesting account of the nidification of this bird, which he calls the "Californian "Condor":—"One of the rancheros of the Carmelo in hunting among the highest peaks of the Santa Lucia range during the last week of April, 1859, disturbed two Condors from their nests, and, at the great risk of breaking his neck, brought away a young bird of six or seven days old, and also an egg; the egg from one tree and the chick from another. There was, properly speaking, no nest; but the egg was laid in the hollow of a tall old robles oak, in a steep baranca, near the summit of one of the highest peaks, in the vicinity of the Tularcitos, near a place called Conejos. The birds are said, by some hunters, not to make nests, but simply to lay their eggs on the ground at the foot of old trees, or on the bare rocks of solitary peaks; others say they lay in old Eagles or Buzzards' nests; while some affirm they make nests of sticks and moss; but the truth seems to be they make no nests. The entire egg weighed ten and a half ounces, and the contents eight and three quarter ounces. The colour of the egg-shell is what painters call 'dead, dull white'; the surface of the shell is not glossy, but slightly roughened, as in the Sea Pelican's eggs, but not so much. The figure is very nearly a perfect ellipse, being a model of form and shape in itself. It measured four and a half inches in length, by two and three-eighth inches in breadth (diameter), and was eight and three-quarters inches in circumference around the middle. The egg-shell, after the contents were emptied, (which were as clear, fine, bright, and inodorous as those of a hen's egg, with a bright yellow yolk,) held as much as nine fluid ounces of water. Before the egg was opened it sunk on being placed in water, probably from its being very recently impregnated. Some of the old hunters say the egg is excellent eating; this one certainly had not the faintest musky odour, nor the slightest foreign smell. The young Condor

mentioned above is from five to seven days old, and weighed ten ounces (the weights used in this paper are *avoirdupois*.) The whole skin of this chick is of an ochreous yellow, and covered with a dull white fine down; the beak was coloured the same as in the old birds; the skin of the head and neck entirely bare of down, and of ochreous yellow; the colour of the legs of a deeper shade than that of the body; it had the musky smell of the old birds, the size and appearance similar to that of a two months' old gosling; it had only been dead a couple of hours."

The cere and bare skin on the head and neck of the adult males in this species are of an orange red of various shades, verging to a flesh colour on the neck; in other specimens these parts are of a blackish lead colour, but whether this darker colouring is the mark of immature age, or of the female sex, has not yet been clearly ascertained. Mr. Taylor, however, is of opinion that it is due to difference of sex, and distinguishes the female bird. The irides are of a carmine pink colour; but, apparently, vary somewhat in their tint in different individuals. The colour of the legs and feet is of a yellowish grey.

An excellent representation of this Vulture, in its red-headed state, is given in Audubon's "Birds of America," pl. 426. I am not aware that any figure has been published representing an individual with the blackish head above referred to. Figures of the above-mentioned nestling and egg (the former of which is in the Norwich Museum, and the latter in my own collection) are given in the *Ibis*, 1860, pl. 8 and 9.

SPECIMENS OF *CATHARTES CALIFORNIANUS*.

Skeleton	Monterey, California	(G) Mr. Taylor.
Skull	Ditto	(G) Ditto
No. 1. ♂ adult.....	Ditto	(G) Ditto
No. 2. ♂ adult.....	Ditto	(G) Ditto
No. 3. ♀	Ditto	(G) Ditto
No. 4, nestling.....	Santa Lucia Mountains, California	(G) Ditto

CATHARTES AURA (Linnæus.)

AURA VULTURE.

The Aura Vulture, though so much smaller than the preceding species, nevertheless much resembles it in general form and appearance. Though somewhat less abundant and familiar than its congener *Cathartes atratus*, it is, nevertheless a numerous species, and usually frequents the vicinity of human habitations. The Aura Vulture is diffused very generally over the continent of North America, where it extends as far northwards as the banks of the Saskatchewan River in the 53rd degree of north latitude, and as far southwards as Guatemala; but it is most numerous in the southern portions of its range, and in the more northern localities which it frequents, it only appears as a summer visitor. This Vulture is also found in most parts of South America. Mons. D'Orbigny, in his work on the birds of that continent, states that he met with it "in the whole of Brazil, in the republic of Uruguay, in Patagonia, Paraguay, Chili, Peru, and Bolivia." With reference to the geographical distribution of this Vulture in South America, I may state that the specimens from British Guiana, Bogota, Ecuador, and Chili, in the Norwich Museum, appear to me to be identical with those from North America; but it is proper to add that specimens from Chili have been considered by some naturalists as belonging to a distinct species, and though I do not agree with this view, yet it may be fair to quote in support of it the following passage from the "United States Naval Astronomical Expedition to the Southern Hemisphere," vol. 2, page 173, where Mr. Cassin, who describes the specimens of the Aura brought from Chili under the title of "*Cathartes iota* (Molina)," observes, "This species, though nearly related to the North American *Cathartes aura*, constantly presents cha-

acters very probably sufficient to constitute specific distinction. It is apparently, or as far as can be ascertained from prepared specimens, a more slender bird, and larger in all its measurements; this last character is particularly applicable to the wings." In addition to the continental localities above referred to, the Aura Vulture is also found in Terra del Fuego and in the Falkland Islands; it likewise inhabits the Islands of Cuba and Jamaica, and one specimen is recorded as having been obtained in the Island of Bermuda. A Vulture, which appears to resemble the Aura, has been observed in the Islands of St. Domingo, Dominica, St. Lucia, St. Vincent and Trinidad; but it requires further investigation to determine whether the Vultures of these Islands really belong to this species, to its congener the *Cathartes urubitinga*, or, as is stated on the authority of M. Ricord, in "Lesson's Complément aux œuvres de Buffon," to a third species distinct from and decidedly larger than either *C. aura* or *C. urubitinga*. It is said that the Vultures in the Island of St. Domingo are only found in the Spanish portion of the island. Should this prove to be the fact, it would probably indicate that they are descended from individuals artificially introduced at some former period into that part of the island. The Aura Vulture feeds on carcases and carrion, and is particularly attracted by dead seals and similar objects occurring upon some parts of the sea coast. It also attacks newly-born lambs, pigs, and other animals, as well as full-grown animals of all descriptions when rendered incapable of defence by sickness or wounds. It likewise preys on the eggs and young of various species of water-birds, especially the smaller herons, and in addition to this it sometimes devours rats and young chickens, as well as small snakes and other reptiles, and the eggs of alligators and river tortoises, which it scratches up from the sandbanks in which they are deposited. The Aura further varies its diet by occasionally feeding upon insects, and, when near the coast, upon shell-fish also. These Vultures collect

in companies during stormy weather, when they soar to a great height; they also collect in considerable numbers when attracted by food, but at other times are usually seen alone or in pairs. They are, however, frequently observed to congregate in groups of about eight or ten immediately before the period arrives for pairing and nidification. They choose secluded spots for the purpose of incubation, occasionally on rocky cliffs, but more often in swampy thickets; in the hollow of a fallen tree; or under the shelter of the prostrate trunk, and occasionally, though rarely, among the projecting roots of a tree still standing. In Peru, they select small sea-girt islets, or sandy ledges near the sea shore. In the Falkland Islands, Captain Abbott (in his paper on the birds of that locality, published in the third volume of the "Ibis") states that "they lay their eggs two in number, but sometimes three, under a high bank amongst bushes, or on the top of a dead balsam log, without constructing any sort of nest." In some localities, however, on the main land, especially in northern latitudes, the Aura Vultures do construct nests, though only of a very slight character. The colour of the eggs is a dirty white, splashed chiefly towards the larger end, with irregular markings of dark brown. The male and female birds alternately share the work of incubation. The cere and bare skin on the head and neck of the Aura Vulture are of a purplish red; but Mr. Gosse, in his work on the birds of Jamaica, states that the colour of the head "varies in the same individual, being sometimes purple, then in a few minutes bright red; and, when dead, is a dull lake-pink." The legs and feet are of a dull pink. Captain Abbott, in the paper already referred to, remarks that "the young birds of the first year have the bare space on the head and neck of a blueish colour, as also the feet; in the mature bird both these are pink." The irides in young specimens are a yellowish brown; they assume a deeper brown as the age of the bird advances, and finally acquire a carmine tint, with the exception of the inner circle of the iris next the pupil, which is usually

of a blueish grey colour. The Aura Vulture, from the colour of its head and of its plumage, has, when on the ground, some resemblance to the common turkey, and is on this account usually called in the United States "the Turkey Buzzard." Specimens of this Vulture differ very considerably in size; but the cause of these variations has not as yet been satisfactorily ascertained. The smallest specimen of the Aura Vulture which I have seen is one from Florida, No. 3 in the Norwich Museum.

Audubon figures an adult and an immature specimen (the former a male) from North American examples in the "Birds of America," pl. 151. A figure of the Aura of Western South America is given by Mr. Cassin, under the name of "*Carthartes iota*" (*Molina*), in the Ornithology of Wilke's "Exploring Expedition, pl. 1.

The egg of the Aura Vulture is figured in Dr. Brewer's "North American Oölogy," pl. 1 and 2.

SPECIMENS OF *CATHARTES AURA*.

Skeleton	Monterey, California...	(G) Mr. Taylor.
No. 1. adult	Ditto	(G) Ditto
No. 2. adult	Ditto	(G) Ditto
No. 3. adult	Florida	Presented by Mrs. J. J. Gurney.
No. 4. adult	Northern Mexico	(G) Mr. Warwick.
No. 5. adult	Mexico	(G) Mr. Parzudaki.
No. 6. adult	Cuba	(G) Geneva Museum, collected by Mr. de Saussure
No. 7. adult	Jamaica.....	Presented by the Rev. J. M. Phillippo.
No. 8. adult	British Guiana.....	Presented by His Excellency P. E. Wodehouse.
No. 9. adult	Ecuador	(G) Mr. Fraser.
No. 10. adult.....	Bogota	(G) Mr. Jamrach.
No. 11. adult.....	Chili	(G) Mr. Verreaux.
No. 12. adult.....	Ditto	(G) Mr. Parzudaki.
No. 13. immature.	Probably Chili	(G) Mr. Verreaux
No. 14. adult.....	Falkland Islands	(G) Mr. Jamrach, collected by Captain Abbott.

CATHARTES URUBITINGA (Natterer.)

YELLOW-NECKED VULTURE.

Professor Schlegel, in his recent excellent work on the Birds of the Leyden Museum, makes the following remarks on the Yellow-necked Vulture:—"The tail is much rounded as in the *Cathartes aura*, which it resembles in many respects; but it is of smaller size, the feathers of the back of the neck are prolonged to the occiput, the stems of the quill feathers are whitish, the bare parts of the head are of an orange yellow, and the iris is carmine red."

Dr. G. R. Bonyan, in his notes on the Birds of British Guiana, published in the proceedings of the Zoological Society for the year 1851, informs us that the Yellow-headed Vulture "is smaller and more slender" than the Black-headed Vulture, and that it is also "less numerous" and a less "gregarious feeder"—appearing "to search for smaller carcasses, such as the putrid fish on the dried savannahs bordering on the creeks."

The geographical distribution of the Yellow-headed Vulture appears to be limited to tropical America, where it is found in Northern Brazil and Guiana, and if (as is probable) it be the same species as that described by Mr. Cassin, under the title of *Cathartes burrovianus*, it extends as far north as Vera Cruz.

I am not acquainted with any figure of this species, or of its egg.

SPECIMENS OF CATHARTES URUBITINGA.

No. 1.....	Brazil	(G) Mr. Parzudaki.
No. 2.....	Ditto	(G) Ditto

CATHARTES ATRATUS (Bartram.)**BLACK VULTURE.**

This small Vulture is probably the most numerous American species of this family. It is found over a very large geographical area; the most northern point to which it has been observed to extend being the vicinity of Puget Sound, in latitude 47 to 48 north; and the most southern, Rio Negro, in latitude 41 south. It ought, however, to be mentioned that though on the western side of the North American continent this species occurs as far north as latitude 47 or 48, on the eastern it is not found further north than about the 39th degree of north latitude, and also that there are many large tracts of country intervening between the extreme limits of its geographical range which are not frequented by it, especially such districts as are of an elevated or arid character. By some naturalists it is supposed that the Black Vultures of North America differ specifically from those of South America, but I have never myself observed any distinction between the two to warrant such a conclusion. This Vulture is gregarious in its habits, and is also one of the most familiar birds of this family, frequenting in considerable numbers many of the cities of the American continent (where it is usually protected on account of its usefulness as a scavenger), and often evincing not only great familiarity, but also very remarkable intelligence, and a power, when brought up tame, of acquiring and evincing an attachment to persons from whom it may receive kindness or attention. The food of the Black Vulture consists of miscellaneous carrion, including excrementory substances. In North America it is said to attack and destroy feeble lambs, young pigs, and larger animals when wounded or ill, and

also to devour young poultry, and when its locality affords the opportunity, to prey on the nestling young of Cormorants and Herons. It has also been observed in Guiana to feed on lizards and other small reptiles. Mr. Wallace, in his travels in Brazil, states that, on the Rio Negro, when animal food is scarce, the Black Vultures are obliged to eat palm fruits in the forest. The Black Vulture is frequently compelled to disgorge the carrion it has swallowed by the Brazilian Caracara, and sometimes also by the Bald Eagle.

The eggs of this species are two in number, with a dirty greenish white ground, variegated with irregular spots of a violet brown, especially towards the larger end. The situations in which this Vulture lays its eggs are very various, frequently in holes of rocks and in crevices of river cliffs sometimes (especially in the tropics), without any nest at all; in other localities (chiefly in North America), it lays its eggs on the touchwood inside a hollow tree, whether fallen or still standing; also frequently under small bushes in marshes, adjoining salt water lagoons, and sometimes amongst plants of the cactus tribe. In Peru it has been observed to nest on the roofs of churches, on ruins, or on high walls in secluded situations, and in the most southern localities which it inhabits it is said generally to build its nest with thorns and small branches and to place it upon trees of the willow tribe which are found in that district. The eggs of the Black Vulture are incubated by the male and female bird alternately, the sitting bird being fed (whilst so occupied) with food disgorged from the crop of its partner. The male bird of this species has been observed at the approach of the breeding season to make his approaches to the female in the strutting manner of a turkey cock, opening his wings and lowering his head, the bare skin of which becomes at that period sufficiently relaxed to hang over the bill,—these actions he accompanies by the utterance of a sort of puffing sound. This species is also in the habit of uttering a hoarse croak when feeding. Monsieur Ogier de Gambaud,

who resided for many years in Guiana, and some of whose manuscript notes are in my possession, remarks with reference to this species, that he was witness of an instance in which a dead fowl was buried in a garden, and the earth flattened over it so as not to give the appearance of its having been disturbed. In a quarter of an hour afterwards these birds assembled on the spot, scratched away the earth, and discovered the fowl, which of course they speedily devoured.

The irides of this Vulture are reddish brown, the legs and feet yellowish grey; the cere and the bare skin of the head and neck are of a dull black.

A pair of these birds, drawn from North American examples, are given in Audubon's "Birds of America," pl. 106. The egg of this species is figured in Brewer's "North American Oölogy," pl. 1, fig. 3 and 4; and a figure of South American examples of the head and egg of this Vulture is contained in D'Orbigny's "Voyage dans l'Amérique Méridionale Oiseaux," pl. 1.

SPECIMENS OF *CATHARTES ATRATUS*.

No. 1.	Orizaba, Mexico.....	(G) Mr. Botteri.
No. 2.	Chili	(G) Mr. Parzudaki.
No. 3.	Angostura, Venezuela	(G) Ditto.
No. 4. ♂	Puellarro, Ecuador	(G) Mr. Fraser.
No. 5. ♀	Perucho, Ecuador	(G) Ditto.
No. 6.	.....	Presented by Charles Jecks, Esq.
No. 7. (nestling)	Duñnas, Guatemala	(G) Mr. Fraser.

SUB-FAMILY THE SECOND.

*VULTURINÆ OR TYPICAL VULTURES
OF THE OLD WORLD.*

Genus **NEOPHRON** (*Savigny.*)**NEOPHRON PERCNOPTERUS** (*Linnæus.*)

EGYPTIAN VULTURE.

Of all the carrion-eating birds of the old world, there are probably few so widely diffused, and none so useful in removing unclean substances as the Egyptian Vulture. It is found generally throughout the south of Europe, and that portion of the African continent which lies to the north and to the east of the desert of Sahara, extending in a south-easterly direction as far as Kordofan and Abyssinia; it also occurs in most parts of Africa lying to the south of the 22nd degree of south latitude, extending as far as the Cape of Good Hope. It is also found in the south-western and southern counties of Asia, extending as far eastward as India and western Thibet,

and it inhabits (with more or less frequency) the islands of St. Jago, St. Vincent, Madeira, and Teneriffe, as well as most of the islands of the Mediterranean sea, and of the Greek Archipelago. The ordinary northern limit of this species, both in Europe and in Asia, appears to be about the 45th degree of north latitude; it has, however, occurred as an accidental visitant as far northward as England and Norway. Its value as a scavenger mainly consists in its predilection for excremental substances, and its consequent disposition to take up its abode in the vicinity of human habitations, a propensity which causes it to be protected in Egypt and in some other countries; but it also feeds on carrion of various descriptions, and in default of such food it occasionally preys upon rats, field mice, small lizards, snakes, insects, and even earthworms. This species has likewise been observed by Mr. Andersson to feed upon the fruit of a creeping plant called "Naras," which is found in some parts of South-western Africa. The natives of the countries about the Orange River in South Africa assert that the Egyptian Vulture preys upon the eggs of the Ostrich, which it breaks by dropping upon them a stone, which it has carried into the air for that purpose, and it is curious that the *Gypsoictinia melanosternon* of Australia is said by some of the Aborigines of that continent to destroy the eggs of the Emu in the same manner. It may here be also mentioned that in the Canary Islands this Vulture is accused (according to Dr. Bolle) of destroying the eggs of Peafowl. The Egyptian Vulture usually remains at a short distance from any carcase which it finds, so long as the larger Vultures are feeding upon the carrion, and it is sometimes compelled to abandon a piece of flesh which it has actually seized, by the attacks of the White-billed Kite (*Milvus parasiticus*.) The nest of this Vulture is usually placed in rocky cliffs and precipices, but in some parts of Africa where such situations are wanting, it is said to nest upon the ground in the midst of bushes or thickets; in India it also nests on tall trees, especially the Banian. The eggs are

two in number, varying much in colour, from white, spotted with reddish brown, to an entire mottled rufous. The Rev. H. B. Tristram, speaking of the nidification of this species in Algeria, says, "The Egyptian Vulture is a much later breeder than most of the other Rapaces in the Atlas—migratory, and more generally distributed than the other Vultures, it lays one, sometimes two, and very rarely three eggs on ledges of rock. While the Gypaète, the Cinerous Vulture, and the Griffon are content with sticks, or rather branches, 'Pharaoh's Hen' heaps on a similar foundation, rags, patches, old slippers, and whole baskets full of camels' hair and wool for the comfort of its offspring. The egg is subject to great variation in colouring, presenting all the varieties of the Osprey, Falcon, and Honey Buzzard. When there are two eggs one is almost always smaller than and inferior in colouring to the other." The Egyptian Vultures remain either in pairs or in families throughout the year, though occasionally collected in somewhat larger numbers by the attraction of food. The representation of this species frequently occurs in the hieroglyphic sculpture of the ancient Egyptians, but it does not appear to have ranked as one of their sacred animals. The appellation of Rachama, which this Vulture still bears among the Egyptian Arabs, is considered to be identical with the Hebrew word, which in the English version of the Pentateuch is rendered by the term "Gier Eagle." By the Europeans in Egypt this Vulture is called "Pharaoh's Hen," and by the Dutch colonists in Southern Africa it is termed "White Crow."

The irides are a deep red in adult specimens, and a reddish hazel brown in younger ones. The cere and the adjacent bare skin, as well as that on the crop, are yellow. According to Le Vaillant, the cere is slightly tinged with red, and especially so in the male bird during the breeding season. The tarsi and feet are of a pale flesh colour, which, however, is tinged with brownish grey in immature specimens.

The Egyptian Vultures, in adult and immature plumage,

are represented in Gould's "Birds of Europe," pl. 3. The egg is figured in the third edition of Hewitson's "British Oölogy," pl. 2; also in Baedeker's work on "European Oölogy," (*Die Eier der Europäischen Vögel*), pl. 9, fig. 2.

SPECIMENS OF *NEOPHRON PERCNOPTERUS*.

Skeleton Egypt (G) M. Verreaux
 No. 1. adult..... (G)
 (The above forms part of the series of British Birds.)
 No. 2. ♂ adult..... South of France..... (G) Mr. Parzudaki.
 No. 3. ♂ immature ... Spain (G) Ditto.
 No. 4. ♂ immature ... Italy (G) Ditto.
 No. 5. ♀ adult..... Tangiers (G) M. Favier.
 No. 6. adult..... Kartoom, Kordofan . (G) T. C. Eyton, Esq.,
 collected by Mr. Murray.
 No. 7. ♂ adult..... Natal (G) Mr. Ayres.

NEOPHRON PILEATUS (Gray.)

PILEATED VULTURE.

The Pileated Vulture exhibits a marked difference from the Egyptian Vulture in retaining its brown plumage when adult—there being no perceptible difference between the colour of the feathers in the young and old birds, except, perhaps, to a slight extent in the short downy feathers of the head. The geographical range of this species is much more restricted than that of *Neophron percnopterus*, being confined to central and southern Africa. Its southern limit being the interior of the colony of the Cape of Good Hope, while to the northward it is not found to extend further than Sennaar and Abyssinia on the eastern, and Senegal on the western side of the African continent. This Vulture has also been observed on two islands lying off the west coast of Africa, viz., Prince's Island and the Island of St. Thomas, as well as in the islands of the Dabalach

group adjacent to the Corali coast in Eastern Africa. In the letter-press of Baedeker's "European Eggs," it is stated to have also occurred in Corsica and Sardinia, but I cannot but think it probable that this assertion may be grounded on some accidental error or misapprehension. The Pileated Vulture differs considerably in size in different localities; those from South Africa being the largest, and those from the West African coast, north of the Equator, being the smallest. The average size of specimens from Abyssinia appears to be intermediate between these two extremes. This Vulture is sometimes found in families, but frequently in larger companies, especially when attracted by food.

Dr. Richard Vierthaler, who observed this bird in Sennaar, states that it there associates with *Neophron percnopterus*, which it entirely resembles in its habits; frequenting the vicinity of human dwellings, and feeding on carrion and excremental substances, in the same manner as the Egyptian Vulture in all respects. This observant traveller (whose very interesting account of the birds of Sennaar was published in the "Naumannia" for 1852) found the Pileated Vulture nesting in Sennaar in the months of December, January, and February, and gives the following account of its nidification:—" *Neophron pileatus* breeds here in large numbers. The nests are placed, without exception, upon tall Mimosa trees, some in forks, some in strong branches close to the trunk; they are altogether very rudely put together of coarse twigs, and vary in size considerably. The basin of the nest is so small that an unfeathered nestling finds but just enough room in it. The eggs, of which there is but one to be found in each nest, vary as much in size and shape as in the markings. The shape is most frequently that of the usual egg shape, less frequently they are roundish or pure oval. The ground colour is a dirty yellowish white, less frequently greyish white, with rusty red, or dirty yellow red spots or larger patches. These patches form with some only a wreath, or cover completely the outer quarter, with others

there are more spots spread over the whole, and so light that they vanish into the ground colour. The grain is coarse, and the smell that which is specific to all Vultures. All the eggs were fresh. The nests were visited from morning till towards noon, and several breeding birds were killed, which were without exception all males."

Captain Bravo, who observed this species in the neighbourhood of the river Gambia, informs me that it there makes a nest, the character of which quite agrees with the above description, but which is there always placed on the highest trees, and especially on the silk cotton tree; at other times these Vultures generally roost in this locality on the palm trees; from thirty to fifty being frequently collected on a single tree.

The iris in this Vulture is dark brown, the cere and bare skin on the head and neck bright violet in the adult and greenish grey in the immature birds; the legs and feet light brown tinged with blueish green.

This species is figured in Temminck's "Planches Coloriées," pl. 222, and the egg is represented in Baedeker's work on European eggs, pl. 9, fig. 1.

SPECIMENS OF *NEOPHRON PILEATUS*.

Skeleton ...	Natal	(G) Mr. Ayres.
No. 1. ♀ adult.....	Cape of Good Hope.....	(G) Mr. Parzudaki.
No. 2. ♂ adult.....	Natal	(G) Mr. Ayres.
No. 3. adult.....	Abyssinia	(G) Mr. Parzudaki
No. 4. immature ...	Ditto.....	(G) Ditto.
No. 5. adult.....	Western Africa.....	(G) Ditto.

Genus VULTUR (*Linnaeus.*)

VULTUR CALVUS (*Scopoli.*)

VULTUR PONTICERIANUS (*Latham.*)

PONDICHERY VULTURE.

This species and the succeeding one (*Vultur auricularis*) were separated by Mr. G. R. Gray, in his magnificent and most useful work on the "Genera of Birds," into a distinct genus, to which he gave the name of *Otogyps*, drawn from the ear-like flaps of skin on either side of the head and neck, by which this species is always distinguished, and which also occur in some examples of the *Vultur auricularis*; but the uncertainty of this feature in the latter species appears to me to stamp it as a peculiarity of too fluctuating a character to form a satisfactory basis for generic distinction. I have, therefore, treated Mr. Gray's two genera of *Otogyps* and *Vultur* as one, under the latter title, which is the original designation of the genus. This Vulture, which was first described by Sonnerat, under the name of *Vautour Royale de Pondichery*, is found throughout the whole peninsula of Hindostan, and also occurs in Burmah and Pegu. It is a curious circumstance, and one that, perhaps, may with propriety here be noticed, that neither this nor any other species of Vulture has as yet been ascertained to exist in the island of Ceylon, a fact which is the more remarkable when the proximity of that island to the Indian peninsula is taken into consideration. The food of the Pondichery Vulture consists of carrion; and when it appears in the neighbourhood of a carcase, it is said that the smaller Indian Vulture, *Gyps bengalensis*, always gives way to it, in the same manner that the Aura and Black Vultures give way to the King Vulture of America. The Pondichery Vulture

lays a single white egg ; its nest, which is large, is formed of sticks, and is placed on trees, and, it is said, frequently also on inaccessible cliffs ; and the nest of various other birds are often found on the same tree, and do not appear to be in any way disturbed by the vicinity of the Vulture. The male of this species has been observed to perform the office of incubation, which it no doubt shares with the female. The Pondichery Vulture is usually found in pairs, but four or five may sometimes be seen together when attracted by food.

The irides in this species are usually of a reddish brown, but in some specimens are yellow ; the cere and bare skin of the head and neck are of a deep yellowish red, and the legs and feet of dull red colour.

A tolerable representation of this Vulture is contained in Temminck's "Planches Coloriées," pl. 2 ; and a figure of the head and neck, on a larger scale, are given in Gray's "Illustrations of Indian Zoology," pl. 15, fig. 1.

SPECIMENS OF *VULTUR CALVUS*.

No. 1. adult.....	India.....	Presented by A. Pritchard, Esq.
No. 2. immature	Ditto.....	Ditto.

VULTUR AURICULARIS (Daudin).

ORICOU VULTURE.

The Oricou, or, as it is sometimes called, the Sociable Vulture, is probably the largest Raptorial bird of the Old World ; its dimensions being but little less than those of the Condor of South America. It is a native of the African continent, and is generally spread over that part of South Africa lying to the south of the tropic of Capricorn. It is also found very generally in Abyssinia, Kordofan, Sennaar, and Upper Nubia ; and inhabits, though in smaller numbers, Lower Nubia and the Sahara, besides which it is occasionally found in Egypt ; and appears also to occur in South-western Asia, and some-

times, though rarely, in the South of Europe. Messrs. Jaubert and Barthélémy Lapommerayé, in their recent work on the Ornithology of the South of France, quote an instance of the occurrence of this Vulture in the neighbourhood of Arles, and another of its having nested in Spain. The same authors state that it is found in Syria, and that a specimen from Mount Lebanon is preserved in the Museum at Marseilles. This species is also said to occur in Greece, and I have the authority of Monsieur Jules Verreaux for stating that the specimen No. 4 in the Norwich Museum was procured in that country. Many of the specimens of this Vulture, killed in South Africa, are found to be destitute of the peculiar fold of the skin on the sides of the neck, which produces the ear-like flaps that give to this Vulture its specific name; and north of the Equator, the great majority of examples seem to be destitute of this appendage. Some observers have even stated that this peculiar fold of the skin is never found in the more northern specimens of this bird, and many naturalists have therefore considered that these more northerly specimens in reality belong to a distinct species, which has received the name of *Vultur nubicus* (Smith). I have not as yet adopted this distinction, considering that further observation is indispensable before the question can be considered as satisfactorily determined; and I may also observe, that the Abyssinian specimen, No. 2 in the Norwich Museum, certainly shews traces of the folds in question on the sides of the neck. The enormous herds of antelopes and other quadrupeds which are found in many parts of Africa, and many of which are continually destroyed by lions or by hunters, form the chief source of food for this great vulture. The carcass which the lion has only partially devoured, or which the hunter has not effectually secured, being always speedily discovered and consumed by these and other carrion-eating birds, except when they are anticipated by their nocturnal rivals, the hyenas and the jackals. The name of Oricou was given to this vulture by the great South African traveller and naturalist,

Le Vaillant, by whom it was first described. The animated account given by that author of the manner in which these great vultures descend upon their prey in the South African deserts, has been so frequently transcribed that I will not here repeat it, but will rather extract from the Naumannia for 1852, an account of a similar scene observed north of the Equator, at Kartum in Senaar, by that enterprising traveller, the late Dr. Richard Vierthaler, who thus describes what he then witnessed:—"In order not to waste the time during our compulsory stay here * * * we arranged a vulture hunt * * * Being in want of larger carrion we made use of a freshly shot dog, which here perfectly sufficed, since one need not wait very long for its decomposition; a carcase of the size of a middle-sized dog dries, under a sun such as there is in this place, perfectly hard in one or two days. Scarcely had the carrion been placed in an open part, provided with a good hiding place, when hosts of parasites (*Milvus forskalii*) and small vultures (*Neophron percnopterus* and *pileatus*) swarmed around it, some croaking ravens (*Corvus scapularis*) traversed the air, and the Maribus were cautiously approaching. The animals must have been exceedingly hungry to-day, for they soon began with their first business to tear out the eyes from their sockets. * * * Looking quietly on this scene at a distance, a scene with which I have been long familiar, I waited for the moment when the first big vulture would dart down. Le Vaillant's supposition that the great vultures do not detect carrion by their organ of smell, but by their sight, and only then each time descend when the smaller ones are already occupied with their meal, is very uncertain, and might just as well be attributed to their great cautiousness and timidity, and this seems to me the more probable since the great vultures, almost without exception, do not seek their feeding places till mid-day, because there are less people to be found then, on account of the burning sun, than at any other time of the day. Besides one finds that, at Kartum, the great

vultures are mostly alone on their carrion, whereas the smaller ones seek their food at the slaughter-house. I was still waiting without observing one, in spite of my carefully searching for them in the air, when all of a sudden, quite close to me, a single one darted down like an arrow in an oblique direction. This was enough for me to betake myself to my ambush, for before a few seconds had elapsed, as if upon a given signal, the air round about me was filled with them, and from every region of the sky those colossal birds darted down upon their prey. Such a scene has something truly grand about it, and involuntarily one uses every effort not to interrupt the stillness which is only disturbed by the noise of their mighty wings. In their descent all vultures, including *pileatus*, but excepting *percnopterus*, have this in common, namely, the habit of drawing in their wings very closely, while with their necks half stretched they extend their talons as far as possible, as if intending to seize eagerly their prey; they do not however rush right upon it, but always settle down at the side of it. Being not more than ten paces distant from them, I now witnessed the hardest fights, the most fearful bill-thrusts which were given on all sides, without making any distinction of near relationship. However, these birds, which otherwise live peaceably together, became more calm, and seated themselves in a close circle round the carrion, only that those which were driven back made several more unmerciful attempts with their bills and wings; frequently they rushed suddenly with their heads hanging down upon the circle, trying thus to separate two birds that were sitting close together, but *pileatus* and *percnopterus* remained at a respectful distance. What is most astonishing in their act of eating is the strength rather than the adroitness with which they use their bills, they each tear off from the hardest flesh pieces easy to swallow, with incredible rapidity, without making the least use of their talons, and thus devour a whole dog, with the exception of the larger bones, in less than ten minutes. Just at a moment when

the many naked necks formed a close and variegated circle round the carrion, I sent amongst them a single load of lead, especially prepared for them; with the noise of thunder they all started in hasty flight, but soon settled down again a few hundred paces from it. Expecting that the birds would soon draw nearer again, I delayed the examination of the result which my shot might have produced; only one corpse lay in the place (*nubicus*), about one hundred yards from it another (*fulvus*). A few minutes elapsed, when the whole company gathered together on the bank of the river, and, according to their accustomed manner, sitting quietly with their wings expanded, probably to warm their ruffled plumage by the delightful rays of a Sennaar sun. The reason why they had settled down here were two winged Ear-vultures, which by running made their escape to that place. The close cotton-field in which I was concealed, prevented me from looking in that direction. My seizing the two latter, scared, by and by, all the larger birds, only the smaller vultures (*pileatus* and *percnopterus*) and the *Milvi* remained gleaning for a short time after. Amongst the vultures proper, *nubicus* was represented by far the largest numbers, next came *fulvus*, only three or four *occipitales*, and a few of a smaller species.* The many large thick-headed vultures which we have observed and shot, were all without the skin flaps on the neck, living as well as dead. The observation which has been made that vultures, when their crop is full, are less timid, and even said to be frequently incapable of raising themselves, cannot, according to my own observations, be referred to these birds."

The details given by different travellers respecting the nidification of this vulture present some considerable variations, which probably may arise from the fact of many of their observations having been made in different localities. Le Vaillant, in his account of this species in the "Birds of Africa," states

* These appear by a reference to another passage in Dr. Vierthaler's Journal to have been specimeus of *Gyps bengalensis*.

that "it nests in the caverns of the rocks; the female only lays two white eggs, or very rarely three; it is in October that these vultures begin their amours, and in January their young are all hatched. As they live in formidable troops, a single mountain sometimes contains as many nests as there are places in it suitable for their reception. * * * These vultures appear to live on very good terms among themselves, for I have sometimes seen in the same cavern as many as three nests side by side. During the time of incubation the male guards the mouth of the cavern where the female sits, which makes it easy at that time to observe the nest; but on the other hand it is almost always inaccessible. I have, nevertheless, by the help of my Hottentots, surmounted these difficulties, and have often risked my life to examine the eggs of these birds, whose resort is a truly disgusting cloaca and infected by an insupportable odour. * * * I have tasted the eggs of the Oricou, as well as those of the Chassefiente (*Gyps fulvus*), and have found them sufficiently good to enable me to use them. The young Oricou, when hatched, is covered with a whitish down; on leaving the nest its plumage is of a clear brown, and all its feathers are bordered with a rufous tinge; those of the breast and belly have not yet assumed their ensiform shape; the head and neck are entirely covered with very fine down, and the ear conchs are hardly perceptible."

Mr. Burchell, although he did not actually find the nests of these vultures, confirms the account given by Le Vaillant of their habit of resorting to rocky cliffs; and in his account of the South African Valley of Leewenkuil, he remarks that, "here, under the inaccessible crags of the precipice, the great vultures" (to which he had previously alluded as belonging to this species) "hold their abode perfectly secure from all molestation, and their retreat would ever remain undisturbed were it not betrayed by the white stains from their dirt."

The following similar account of the nidification of the North African race of this vulture is given by the Rev.

H. B. Tristram, in the "Ibis," p. 282 :—"This bird is a constant resident in the Sahara, though in very limited numbers, while the Griffon breeds throughout the Atlas, the Nubian seems to resort to more southern ranges for his eyrie. There is a breeding place in the south-west of Bishra, in some lofty isolated cliffs; and another near the stupendous gorge of El Kantara." On the other hand, I have been favoured by Mons. Jules Verreaux with the following account of the nidification of the Oricou Vulture in a very different locality :—"It makes its nest on immense bushes (the top of which it entirely covers) of branches and twigs, lined with a thick layer of the excrements of cattle or other animals. We visited ten of these nests in the immense plain on the banks of the Great Elephant River.

* * * The egg of the Oricou is of a chalky white, sprinkled with larger spots." The proceedings of the Zoological Society for 1853 contain the following remarks on the same subject, from the pen of Dr. Andrew Smith :—"The belief that several pairs build their nests together (whence the appellation of Sociable Vulture has been derived) is erroneous, for Dr. Smith has never met with more than one nest actually occupied upon the same tree; the error has, probably, originated in a new nest being occasionally built adjoining to an old one which had become unserviceable. This bird seems but little disposed to sociability, rarely more than two are seen together, and if four occur in the vicinity of a carcase, the number is considered great." An egg of this vulture, brought from Northern Africa, and figured in the proceedings of the Zoological Society for 1853, is there represented as having a white ground, but thickly marked with irregular blotches of various shades of brown, especially towards the larger end. Another egg, laid in captivity, by a specimen in my possession, is white with a thick cluster of rufous markings round the larger end; the tint of rufous being very similar to that on a highly-coloured Golden Eagle's egg. The sides of the egg are also partially clouded with a very faint tinge of rufous. The longitudinal circumfer-

ence of this egg measures $9\frac{1}{4}$ inches, and the transverse circumference $8\frac{1}{2}$ inches. The bird which laid this egg has the flaps of skin on the sides of the neck very fully developed, proving that these appendages are not limited to the male sex. The above-mentioned egg (laid in February, 1859,) has been accurately figured in Dr. Bree's work on the "Birds of Europe."

The same bird has subsequently laid five more eggs—being one annually during the years 1859, 1860, 1861, 1862, 1863, and 1864—all laid during the month of February; the earliest date being the 15th, and the latest the 26th of that month. These eggs are all more or less tinged with rufous, except the last, which is entirely white—the previous one having been nearly so.

The irides in this species are of a very deep brown, and the eye is remarkable for being furnished with a row of large black eyelashes both above and below. The cere, tarsi, and feet are of a lavender grey. The bare skin on the head and neck is of a dull red, which is palest on the crown and brightest on the sides of the head. On the sides of the neck the red is also pale, while on the throat it is tinged with purple, especially in the neighbourhood of the lower mandible. In young specimens these colours are paler and are also more or less obscured by minute tufts of very fine white down, which are scattered over the head and neck; but which, as the bird advances in age, are superseded by fine hairs. Below the lower mandible, this Vulture has a tuft of long bristly hairs, which resemble those in the beard of the *Gypaète*; but which, from lying flat on the skin, are less conspicuous than would otherwise be the case.

It is worthy of remark that specimens of this Vulture not unfrequently occur both in North and South Africa, in which some of the feathers of the back are of a very much paler colour than the remainder, giving to that portion of the plumage a pied appearance which is very singular. From observation of a specimen in confinement, in which this peculiarity exists, I am able to state that it is by no means limited to young birds.

Specimen No. 3 in the Norwich Museum exhibits the variation of plumage to which I have here alluded.

A specimen in this state of plumage appears to me to be figured in Temminck's "Planches Coloriées, pl. 426, under the name of "Vultur Imperialis;" but it is right to add that this specimen is said to have been ticketed "Bengal," which however is, I believe, an incorrect locality.

Le Vaillant figures a South African example of the Oricou Vulture, with the flaps on the sides of the neck well developed, in his "Oiseaux d' Afrique," pl. 9.

A specimen, without the development of these flaps, is figured in Temminck's "Planches Coloriées," pl. 407.

I have already alluded to the figures which have been published of the egg of this Vulture.

SPECIMENS OF *VULTUR AURICULARIS*.

Skeleton ♂	.....	Natal	(G) Mr. Ayres.
No. 1. ♂	immature.....	South Africa	(G) Mr. Verreaux.
No. 2.	adult	Abyssinia	Presented by the Hon. East India Company.
No. 3.	immature.....	Algeria	(G) Mr. Parzudaki.
No. 4.	♀ immature.....	Greece.....	(G) Mr. Verreaux.

VULTUR OCCIPITALIS (Burchell.)

OCCIPITAL VULTURE.

This very handsome African Vulture was first described and named by Mr. Burchell, who met with it in South Africa, on the banks of the river Makwarin, which would appear to be as far south as it is usually found to extend. To the north-east this species inhabits Abyssinia, Kordofan, and Sennaar. To the west, the coast of Guinea is given as a locality for it in the letter-press of Temminck's "Planches Coloriées," and one of

the specimens in the Norwich Museum was brought from Bissao. Like the other Vultures, this species feeds on carrion. The following entry in the journal kept by Dr. Richard Vierthaler of his journey in Sennaar, to which allusion has already been made, may serve to illustrate the voracity of this bird:— “A *Vultur occipitalis*, winged by me on the 5th February below Rosseires, would save itself by running, and, in doing so, it vomited all that it had in its crop, but swallowed it again gradually when it became convinced of the impossibility of escaping. A Gyps, which was winged at a later period, at Kartoom, vomited whilst running, and was thereupon pursued by a *Vultur occipitalis*, which eagerly devoured piece after piece.” On another occasion, Dr. Vierthaler relates that three of these Vultures having been attracted by the bodies of some birds which he skinned, allowed themselves to be shot at three times before they became willing to abandon their booty. Dr. Rüppell, who observed this Vulture in Abyssinia, states, in his “New Wirbelthiere,” that it “builds its nest on the top of isolated high trees, where one often finds several nests together, of which, however, only one is used, so that the others seem to have served the same pair before.”

The Occipital Vulture is not a gregarious species, being usually seen either singly or in pairs, and there being seldom more than three or four to be found together, even when attracted by food. Mr. Ayres states that at Natal “these birds are much more rare than the other kinds of Vultures, only going in pairs, and generally coming to feed when the other kinds of Vultures are not present.” Mr. Burchell, who describes a recently killed female specimen in his “Travels in South Africa,” gives the following particulars:—“That part of the neck which was bare, together with the base of the beak, were white; the beak and feet were of a flesh colour; the bare part round the eyes white, and the irides of the colour of burnt amber.”

Monsieur Temminck states that, in a specimen kept in

confinement, "the white skin of the neck was tinged with a varying shade of rose-colour." Mr. Ayres says, of an adult male procured by him at Natal, "bill blood red, black at the tip, and light blue at the base; skin round the eye and nostril light blue; eye light brown; skin of the neck lilac-colour."

The adult plumage of this Vulture is figured in Rüppell's "Atlas zu der Reise in Nördlichen Afrika," pl. 22, and the immature in Temminck's "Planches Coloriées," pl. 13.

SPECIMENS OF *VULTUR OCCIPITALIS*.

Skeleton ♂	Natal	(G) Mr. Ayres.
No. 1. adult	Bissao	(G) Mr. Verreaux.
No. 2. immature	Natal	(G) Mr. Ayres.
No. 3. adult	Ditto	(G) Ditto.

VULTUR MONACHUS (Linnæus.)

CINEREOUS VULTURE.

This noble Vulture is an inhabitant of many of the mountainous regions of southern and central Europe and Asia, as well as of northern Africa. In Europe, the countries in which it has been chiefly observed, are the south of France (where it appears as a migratory visitor in the spring, and nests in the Pyrenees), Spain, Italy, the Ukraine, Hungary (where it nests in the Tartra mountains), Albania, Bessarabia, the Danubian Provinces, the steppes of southern Russia, and the Crimea. Occasional specimens have been procured in Germany, and one is recorded as having been killed as far north as Denmark. This species also inhabits the islands of Corsica, Sardinia, and Sicily. The Asiatic localities in which it has been ascertained to exist are Asia Minor, Syria, Nepal, and Assam, the latter being the most easterly point to which its geographical range is known to extend, as, though a specimen figured by Le Vail-

lant, under the name of "Le Chincou," is described by him (on the authority of its possessor) as having been brought from China, the circumstance of such having been the case does not seem by his account to have been ascertained with sufficient precision to justify its being regarded as an ascertained fact. In Africa, the Cinereous Vulture occurs in Morocco, Algeria, and Egypt; but I am not acquainted with any instance of its having been met with further to the south, and although the Cape of Good Hope is given as a locality for this species in the late Mr. Strickland's work on "Ornithological Synonyms," I am disposed to think that this must be an error. I may add that the *Vultur arrianus*, of Des Murs' "Zoology of Abyssinia," appears not to be this Vulture, but rather to refer to *Gyps rüppelli*, which is worthy of remark as the specific name of "Arrianus" is properly a synonym of the present species. This Vulture feeds on carrion, and is said also to attack lambs and other young animals. It has been observed that the Griffon Vultures, when attracted to a carcase, give precedence to this more powerful species. The nest of this Vulture is placed on the rocks of mountain precipices, and is composed of a large quantity of boughs and sticks. Monsieur Malherbe, in his very useful book on "The Birds of Sicily," says, with reference to the nidification of this species, "This bird usually establishes its eyrie on the steepest and most inaccessible rocks, and the female lays there two white eggs spotted with brown towards the larger end, and also tinged with clear rufous; the young, when first hatched, are covered with down of a light bay colour." A similar account of the eggs of this Vulture, found in the Pyrenees, is contained in Messieurs Jaubert and Barthélémy Lapommeraye's work on "the Birds of the south of France," and Dr. Jaubert, in an article in the "Revue de Zoologie for 1854," speaks of the egg of this species as differing from the eggs of *Gyps fulvus* in no respect except in being perceptibly rounder. The Cinereous Vulture is not usually gregarious, though as many as five have been

observed together when attracted by a carcase, and two instances are on record of a flock of more than a hundred of these Vultures being observed in the south of France, flying southwards towards the Pyrenees, during the month of October. This species of Vulture, though not apparently so familiar in its habits as some others, has been observed in Hungary to frequent the villages during the winter season, though not during the remainder of the year.

The iris in the Cinereous Vulture is of a very dark hazel brown; the cere is of a purplish lavender colour, which also more or less pervades those portions of the head and neck which are uncovered by feathers; the tarsi and feet are of a similar colour, somewhat modified by a tint of grey.

The Cinereous Vulture is well figured in Gould's "Birds of Europe," pl. 2.

SPECIMENS OF *VULTUR MONACHUS*.

- No. 1. adult..... Wallachia (G) Mr. Parzudaki.
 No. 2. ♂ adult..... Tangiers..... (G) Mr. Favier.

Genus *GYPS* (*Savigny*.)

GYPS FULVUS (*Gmelin*.)

FULVOUS GRIFFON VULTURE.

This Vulture (which derives its title to the appellation of Fulvus from the colour of its plumage, especially when immature,) is the most numerous of all the larger vultures, and also the most widely spread in its geographical range. It is a bird especially frequenting mountainous districts, and occurs (chiefly in such localities) throughout the greater part of Africa, the southern countries of Europe, and a considerable portion of southern Asia. In Africa, this Vulture is found in the colony of the Cape of Good Hope, including the immediate vicinity

of Cape Town, in Caffraria and Natal, and also in Abyssinia, extending northwards to Egypt, and from thence westward to Morocco. It is also included in the list of birds collected by Major Denham, during his travels in Bornou. In Europe it inhabits Spain, and visits the south of France as a vernal migrant in considerable numbers; nesting in the Pyrenees. It also occurs in Italy, in Hungary, in the Danubian provinces (where it is said to be very numerous), in Turkey, in Greece, and in the Crimea. It occurs occasionally in Germany and Silesia, and a single specimen has been obtained in the south of Ireland. This species is also found in the Island of Sardinia, in Candia, and in the Grecian Archipelago. In Asia, the localities which this Vulture has been ascertained to inhabit are—the Caucasus, Asia Minor, Syria, the Himalaya Mountains, Ladak, Nepal, and Assam, and it also occurs occasionally in the Indian Peninsula. The Fulvous Griffon Vulture is a species, the various individuals of which often differ much in size, and the smaller specimens have, by some naturalists, been supposed (but, as far as I can judge, erroneously,) to form a distinct species—to which (as such examples frequently occur in southwestern Europe) the specific name of “*occidentalis*” has been applied. The South African examples of this species were described by Le Vaillant under the name of “*Le Chassefiente*,” and they have also received the specific name of “*Kolbii*.” They are not, however, in my opinion, specifically distinct from the more northern specimens of the true *Gyps fulvus*. It should, however, be mentioned that both South African and Indian specimens of this vulture are less fulvous in their colouring than those from other localities. The food of this vulture consists of carrion, as well as sometimes of excrementory substances, and it is frequently attracted to the vicinity of human habitations by the facility of finding various offal and refuse in such situations. It also frequents the sea coast, and the banks and islands of some of the large rivers, in search of shell fish and crustacea, and also in quest of dead fish which may acci-

dentally be thrown upon the shore. In South Africa it has likewise been observed to feed upon locusts and small tortoises, the latter of which it swallows whole. Mr. Ayres, of Natal, informs me that when a number of these vultures have collected about a dead bullock, after they have eaten the flesh from one side, they will all pull together and turn the carcase over to eat the flesh from the other side.

It seems probable that many of these vultures wander from their usual haunts when attracted by accidental supplies of food. The Rev. H. B. Tristram, writing in the "Ibis," (vol. 1, p. 280,) respecting the present species, says, with reference to the siege of Sebastopol, "the Arabs believe that the vultures from all North Africa were gathered to feed on Russian horses in the Crimea, and declare that during the war very few 'Nissr' were to be seen in their accustomed haunts." The Griffon Vulture usually places its eyrie on the ledges of mountain precipices, several pairs frequently nesting in the same locality. Monsieur Temminck states, however, that in the island of Sardinia it nests "on the highest oaks of the forests, where it constructs an eyrie of branches and roots of more than three feet in diameter." This vulture usually lays but one egg; occasionally, however, a nest is found containing two. The eggs are generally white, but sometimes they are varied by markings of a reddish brown; these markings, however, when they do occur, are generally, though not invariably, pale and faint. The habits of this vulture are decidedly gregarious, and it frequently congregates in large numbers. The iris in this species is hazel, the cere dark slate colour; the skin on the head and neck, the tarsi and the feet, a blueish grey.

This Vulture appears to be identical with the Sacred Vulture of the ancient Egyptians, and its remains have been found embalmed amongst the mummies of Thebes. It is frequently represented on the monuments, sometimes in its natural form, and sometimes with the head of a serpent instead of its

own. The ancient Egyptians also often represented this vulture with extended wings on the upper part of their porticos and doorways; and their Goddesses and Queens are frequently portrayed as wearing head-dresses made in the shape of this bird, probably because it was considered in their mythology as emblematical of maternity.

A nearly adult specimen of this vulture is figured in Gould's "Birds of Europe," pl. 1. A South African example, also nearly adult, is figured in Le Vaillant's "Oiseaux d'Afrique," pl. 10, under the name of "Le Chassefiente." The immature plumage of this species is represented in Boitard's "Oiseaux de Proie," pl. 1, fig. 2.

The egg is figured in the third edition of Hewitson's "British Oölogy," pl. 1.

SPECIMENS OF *GYPS FULVUS*.

Skeleton ♂ adult.....

No. 1. adult..... Africa (G) Zoological Society.

No. 2. immature..... (G)

The above two specimens form part of the series of British Birds.

No. 3. immature..... Pyrenees (G) Mr. Parzudaki.

No. 4. immature..... Athens (G) Ditto.

No. 5. ♂ immature..... Tangiers (G) Mr. Favier.

No. 6. ♂ adult..... Sonk-harras, Algeria (G) Rev. H. B. Tristram.

No. 7. nestling Algeria (G) Mr. Parzudaki.

No. 8. immature..... Abyssinia (G) Ditto.

No. 9. adult..... Cape of Good Hope (G) Mr. Verreaux.

No. 10. adult..... Ladak Collected by Lieutenant
Strachey, presented by
the Hon. East India
Company.

No. 11. immature..... Madras (G) Zoological Society, col-
lected by J. M. Heath,
Esq.

GYPS RÜPPELLI (Bonaparte.)

RÜPPELL'S GRIFFON VULTURE.

This well-defined and certainly distinct species of Vulture appears to be confined to the African continent, where it is found as far southwards as the colony of the Cape of Good Hope, and extends in a north-easterly direction as far as Southern Egypt. Its westerly limits have not been fully ascertained, but I have received it from the West African coast at Bissao. Dr. Rüppell, who describes this species under the name of "*Vultur Kolbii*," states that the irides are white, intermixed with serpentine and longitudinal fibre-like lines of a brown colour; the cere black, the feet lead coloured, and the bare skin on the neck blue above and pinkish below.

Dr. Vierthaler describes the iris as being of a yellowish brown, and the cere horn coloured. The food of the Rüppell's Vulture is stated to consist of carrion and of excrementitious substances. This species has been observed to defend itself, when wounded, with a courage which is not exhibited by other species of vultures under similar circumstances. This peculiarity is thus described by Dr. Brehm, in his very interesting journey to Kartoom, published in "*Cabanis' Journal of Ornithology*":—" *Gyps rüppelli* is a regular devil, he goes up to his man like mad, jumps up half a foot high from the ground, and darts his long neck so far from him, that it almost reaches the face of the hunter; during this he snaps so audibly with his beak, that his object, to tear opportunely a few ounces of flesh from the face of his enemy, cannot be mistaken. . He runs exceedingly fast, carrying his body almost horizontally, and his wings, perhaps, assisting him onwards; but if you come but near him, he turns round like lightning and rolls

furiously his beautiful s very-grey eyes. Have you safely seized him? he yet fixes his claws firmly, and knows, despite their being rather blunt, how to defend himself still very energetically."

An immature specimen of this Vulture is figured in Rüppell's "Atlas," pl. 32, under the name of "Vultur Kolbii." Three other examples are represented in Muller's "Nouveaux Oiseaux d' Afrique," pl. 5, under the title of "Gyps Magnificus:" one of these is more advanced in age than the other two, but, nevertheless, does not appear to me to be fully adult, although stated to be so in the accompanying text.

SPECIMENS OF *GYPS RÜPPELLI*.

Skeleton	Natal	(G) Mr. Ayres.
No. 1. adult.....	Abyssinia	(G) Mr. Parzudaki.
No. 2. ♂ immature	Nubia	(G) Mr. Verreaux.
No. 3. immature	South Africa	(G) Ditto.
No. 4. ♂ adult.....	Bissao	(G) Ditto.

GYPS INDICUS (Scopoli.)

GYPS TENUICEPS (Hodgson.)

LONG-BILLED GRIFFON VULTURE.

The Slender-billed Griffon Vulture appears to be exclusively limited to the continent of Asia. It is found throughout the Indian peninsula, and it also inhabits Burmah and Siam. This species feeds on carrion, and is gregarious in its habits; from twenty to thirty individuals being frequently seen together.

The following particulars respecting this vulture have

been communicated to me by Mr. Edward Blyth, of Calcutta, whose great knowledge of Indian Ornithology, and equal kindness in communicating the results of his observations, are well known to all who have had the advantage of his assistance on such subjects:—" *Gyps indicus* differs from all the other species of the genus *Gyps* in its comparatively slender bill, and in the extent of the ceral portion of it, which occupies nearly half, measuring from the forehead. It is the only vulture I have seen from the Malay countries, and appears to be very common throughout India; but, as a general rule, affects the open country; while *Gyps bengalensis* more affects densely inhabited localities. During one season only, the cold weather of 1845-6, considerable flocks of *Gyps Indicus* came into Calcutta, and were common about the streets. How this came to pass I could never ascertain to my satisfaction. We have always the *Gyps bengalensis* abundant about the Abattoir and at the cremation Ghât; but, at that particular season, *Gyps Indicus* was equally abundant within the precincts of the town. I remember having some large animal skinned, a Nilgau, I think, in the compound attached to the Museum: a flock of vultures, of both species, were attracted around the skinners; some perched on the wall close by, others fearlessly descended. There was one particularly fine example of *Gyps indicus*, and I directed one of my youngsters to capture it; he threw pieces of meat nearer and still nearer, and then suddenly seized it by the wing with the utmost ease. I caged the vulture, and some time afterwards shipped it for London, but never heard what became of it. The experiment, however, could not be repeated, though the others did not take further alarm than that of profiting by what they had witnessed. An adult male *Gyps indicus* measured 3 ft. 2 in. in extreme length, by $7\frac{1}{2}$ ft. in expanse of wings, closed wing $24\frac{1}{2}$ in., tail $10\frac{1}{2}$ in., bill from forehead $2\frac{3}{4}$ in. (in a straight line, not following the hook,) of which ceral portion $1\frac{1}{4}$ in., extreme depth of bill $1\frac{1}{16}$ in., length of middle toe with claws $4\frac{3}{4}$ in. Irides dark,

feet blackish, ceral portion of bill ditto. As in other species of Gyps, the adult is distinguished by a white ruff at the base of the neck above; in the first and second plumage this is represented by pointed feathers, paler and more flobose in the young. Plumage of adult above, light greyish brown, slightly margined paler; below, paler, the feathers lighter along the centre, and of an elongated hastate form—tibiæ covered with white down, the crow with close dark brown plumes—ridge of the bill broadly yellowish white, the rest dark brown, except the elongated ceral portion, which is blackish; neck blackish and naked, except a few scattered minute tufts of down. The neck of *Gyps indicus* (adult) is more naked than that of any of the other species of Gyps. The young, in first plumage, has the bill almost wholly yellowish white, including its ceral portion; the neck clad with white down, which almost conceals the dark skin it covers; crown covered with minute plumelets of a less downy quality, every feather with a pale medium streak; those of the wings broadly pale-margined, lower parts almost uniformly whitish; the rump (I should remark) is whitish at all ages. The second plumage is intermediate, the dorsal feathers are longer, with the pale central streak to each, narrower and better defined, and the colours are more strongly contrasted. At this age there is a conspicuously lineated appearance throughout, much more strongly marked than in the young, and the neck has feathered downy tufts, much more sparse than in the young of the first year, and again much more copious than in the adult; crown already bare, the short feathers covering the crow are much paler in the young, and of intermediate colour. Both *Gyps indicus* and *Gyps bengalensis*, and also *Otogyys calvus* nestle in the vicinity of Calcutta, building a large nest upon high trees, similar to the nests of various eagles and others of the larger Falconidæ, and lay two or three eggs of a dingy white, sometimes freckled with a pale greenish dusky. This description applies to each and all of them."

Mr. Jerdon, in his excellent work on the "Birds of India," states that the Long-billed Vulture frequently nests on cliffs.

This vulture is well figured in Gray's "Genera of Birds," pl. 3.

SPECIMENS OF *GYPS INDICUS*.

- No. 1. adult..... Bangalore, India (G) Mr. Leadbeater.
 No. 2. adult..... Siam, 200 miles N.E. of Bankok (G) Mr. Mouhot, per
 Mr. Stevens.
 No. 3. nestling... Ditto (G) Ditto.

GYPS BENGALENSIS (*Gmelin.*)

GYPS LEUCONOTUS (Gray.)

WHITE-BACKED GRIFFON VULTURE.

This Vulture is an inhabitant of the whole Indian peninsula, and also of Burmah, Assam, Ladak, Cashmere, and Afghanistan; but, in the last-mentioned country, it has been observed to appear as a summer visitor only. A vulture, apparently identical with this species, also occurs in Eastern Africa, being found in Abyssinia, Sennaar, and Kordofan, and sometimes occurring as far northwards as Nubia; but as all the African specimens, which have come under my notice, are in the brown plumage—which, in India, is peculiar to the immature birds—I am disposed to think that, until further observation has decided whether the adult plumage of the African and Indian birds is or is not identical, the question of whether they really do, or do not, belong to the same species, cannot be considered as definitively settled. The White-backed Vulture is a remarkably familiar bird, feeding on carrion, and habitually seeking its food in the vicinity of human habitation; its habits are decidedly gregarious, as it both flies, feeds, and nests in company. It selects both cliffs and large trees for the purpose of nidification, a single tree often contains as many as four

nests, and two or three adjacent trees are frequently all thus occupied. This vulture builds a nest of considerable thickness, constructed of small branches and twigs, mixed with dead leaves; it lays a single egg, which is entirely white. In the adult bird of this species the bare skin of the head and neck is of a purplish brown, the legs and feet are of a similar colour tinged with grey, and the irides dark brown.

This species is figured in Gray's "Illustrations of Indian Zoology," the adult bird in pl. 14, and the immature in pl. 15. The adult plumage is also well represented in Gould's "Birds of Asia," part 3, pl. 1.

SPECIMENS OF *GYPS BENGALENSIS*.

Skeleton.....	British Museum.
No. 1. adult	India..... (G) Zoological Society.
No. 2. immature	Ditto..... (G) Ditto.
No. 3. ditto	Nubia
No. 4. ditto	Abyssinia
	(G) Mr. Verreaux.
	(G) Ditto.

SUB-FAMILY THE THIRD.

GYPOHIERACINÆ OR FISHING VULTURES.

This sub-family consists but of a single species, remarkable as being apparently the link by which the Vulturine group is connected with that of the Sea Eagles.

Genus *GYPOHIERAX* (Rüppell.)

GYPOHIERAX ANGOLENSIS (Gmelin.)

ANGOLA VULTURE.

This species (the only one of its sub-family) inhabits the sea-coast and the mouths of rivers in tropical Africa, extending on the western coast from the Congo as its southward to the Gambia as its northward limit, and also inhabiting the island of Fernando Po, while on the eastern coast it is found in the country of Zanguebar, and on the island of Pemba.

The head of this species is less denuded of feathers than that of any other Vulture; and this circumstance, combined with the shape of its bill, the upper mandible of which is proportionably more elevated than that of any other Vulture; and its prehensile feet, with roughened soles and sharp talons, indicate its affinity to the sea eagles, which it also greatly resembles in its habits—often seizing living fish in its talons from the surface of the water, whilst at other times it catches the crabs which frequent the shore. It is also said to feed occasionally on the fruit of the palms and on ground nuts. The change of plumage incident to the Angola Vulture, from

the brown dress of the immature bird to the white and black plumage of the adult, is worthy of observation as marking an affinity in colouring between this species and *Neophron percnopterus*.

The irides in this Vulture are a light yellow, the cere grey, the adjacent bare skin flesh colour, and the legs of a similar tint; but both these parts are more rosy in adult than in immature birds, and incline rather in the latter to a pinkish grey.

The adult bird of this species has been well figured in Jardine and Selby's "Illustrations of Ornithology," second series, pl. 13, and in Gray's "Genera of Birds," pl. 4. A characteristic wood-cut of the immature bird is given in "The Gardens and Menagerie of the Zoological Society Delineated," page 303, and two examples of immature birds in change (one more advanced than the other) are figured in Wolf's "Zoological Sketches," pl. 38.

SPECIMENS OF *GYPHIERAX ANGOLENSIS*.

Skeleton	Bissao	(G) M. Verreaux.
No. 1. ♂ adult.....	Western Africa.....	(G) Zoological Society.
No. 2. ♂ immature ...	Fernando Po.....	(G) Do.
No. 3. ♂ immature ...	Bissao	(G) M. Verreaux.
No. 4. immature ...	Gaboon River	(G) M. Du Chaillu.

SUB-FAMILY THE FOURTH.

GYPAËTINÆ or GYPAËTES.

This sub-family (consisting of but two species) appears to connect the Vultures with the true Aquiline Eagles in a similar manner to that in which the Sea Eagles are connected with the Vultures by the preceding sub-family of *Gypohieracinae*.

Genus *GYPAËTUS* (*Storr.*)**GYPAËTUS BARBATUS** (*Linn.*)

BEARDED GYPAËTE.

The Bearded Gypaëte, or Læmmer-Geyer (the latter being the appellation given to this species in Switzerland), is an inhabitant of many of the mountainous countries of Europe, Asia, and Africa.

Its European range comprises the Pyrenees, the Alps, and the mountainous regions generally of Spain, Northern Italy, Hungary, Albania, and Greece. It is also found in the island of Sardinia; as it was formerly in Sicily, where, however, it appears now to be extinct.

In Asia this species inhabits the mountains of Asia Minor, the Caucasus, the Himalayas, and the Alatou range, as far north as latitude 44°. It is also mentioned by Middendorf as extending as far north as the Altai mountains, but this was doubted

by the late Mr. T. W. Atkinson, whose very extensive travels in Central Asia rendered him a high authority on the subject, and who favoured me with the following communication in reference to it:—"The most northerly regions in which I found the Bearded Vulture was in the Alatau mountains, about latitude 44°. Even in the Tarbagatai mountains, in latitude 46°, he is not met with; nor did I see him during the whole of my rambles in the Altai. It is my full conviction that he is not found anywhere in these regions. To the south of the Alatau, in the Syanshan, they are numerous."

The above are also the most eastern localities for the Bearded Gypaëte which I am able to quote. The Catalogue of the Birds in the British Museum does indeed mention a specimen as having been brought from China, but there is reason to believe that this is in error, and that the bird in question was in fact brought from the Himalaya mountains.

In Africa, the Bearded Gypaëte appears to be limited to the mountains of the Atlas range, being replaced in other mountainous parts of that continent by the succeeding species. It may be right to mention that specimens from the Pyrennees and the island of Sardinia, from the Himalayas, and from Central Asia, have been severally supposed by various naturalists to form distinct species; but as it seems to me without sufficient reasons to justify such a conclusion, although some variations are unquestionably apparent between specimens brought from different localities; thus the rich rufous tints which characterise the plumage of the adult bird on the neck, breast, and abdomen, are much more decided in most specimens from the Himalayah and Atlas mountains than in those from the Alps. Having referred to this rufous tinge, I may here mention the curious fact that this colouring entirely disappears from the plumage of specimens which are kept long in confinement. Individuals from the Himalaya range occasionally present the singular peculiarity of a row of small feathers running down the outside of the first joint of the middle toe. This

singular variation, though not of very common occurrence, is sometimes found both in adult and in immature specimens.

The following particulars respecting the mode of feeding practised by the Læmmer-Geyer, I extract from "Tschudi's *Sketches of Nature in the Alps*:"—"The contents of the stomachs of Læmmer-Geyers which have been opened after death have created no little astonishment. * * * One contained five bullock's ribs two inches thick and from six to nine long, a lump of hair, and the leg of a young goat from the knee to the foot; the bones were perforated by the gastric juice and partly reduced to powder; but the most abundant feast was found in the stomach of a Læmmer-Geyer, killed by Dr. Schinz, which contained the large hip-bone of a cow, the skin and fore quarters of a chamois, many smaller bones, some hair, and a heath-cock's claws. * * * If the Læmmer-Geyer sees an old chamois or a sheep or goat grazing near a precipice, it will whirl round and round trying to torment and frighten the creature till it flies to the edge of the cliff, and then falling straight down upon it, not unfrequently succeeds in pushing it into the abyss below with one stroke of its wings. Diving down after its mangled victim, it will begin by picking out its eyes, and then proceed to tear open and devour the body. * * * It is only the smaller class of booty, such as foxes, lambs, or marmots which can be carried off by the Læmmer-Geyer, as its feet and claws are comparatively weak." The same naturalist also mentions the hare, the marten, the squirrel, the crow, and the woodcock, as occasionally falling a prey to the voracity of the Bearded Gypaète, and adds that there is no doubt that infants who have been left exposed near the resorts of these formidable birds have occasionally been seized and carried off by them.

In Algeria this species is observed to feed largely upon tortoises, which it carries to a great height in the air and then drops upon rocks or stones, thus breaking the reptile's shell and enabling the captor to feed upon its flesh.

The existence of this habit in the Læmmer Geyer, more than two thousand years ago, is, if not proved, at all events rendered very probable, by the circumstances of the death of the poet Æschylus, which occurred in Sicily, B.C. 456, and which are thus described in Dr. William Smith's "Dictionary of Greek and Roman Biography":—"On the manner of his death, the ancient writers are unanimous. An eagle, say they, mistaking the poet's bald head for a stone, let a tortoise fall on it to break the shell." Probably this habit of the Læmmer-Geyer also suggested the ancient fable which exists under various modifications of a tortoise being carried by an eagle to see the world, &c.

Mr. W. H. Simpson, whose observations on this species in Ætolia are included in his notes on the ornithology of that country, published in the second volume of the "Ibis," states that the Læmmer-Geyer obtains the contents from the interior of marrow-bones in a similar manner "by taking them to a great height and letting them fall upon a stone."

The following account of the habits of this species in Northern India was contributed by Mr. Hodgson to the fourth volume of the "Journal of the Asiatic Society of Bengal":—"The manners of this bird are decidedly more Vulturine than Aquiline. Ordinarily he is met with in groups, or pairs, or singly, without marked distinctions of habits in that respect; but the prospect of an abundant repast is sure to collect numbers of the species too voraciously intent upon satisfying the craving of an appetite dependant for its gratification upon contingencies, to admit of their betraying any of that shyness of man which the aquiline race invariably manifest. If the flesh-pots be exposed at Simla or Massuri, or elsewhere in the western hills, it becomes necessary to keep a good watch upon them, lest the Bearded Vulture steal a share of the contents, and the offals and carrion carcases, freely abandoned to him by our European soldiery and by the peasantry, he rushes to devour, almost heedless of the neighbourhood of human kind."

The seventh volume of the Asiatic Society's Journal contains Lieut. Hutton's observations on this species in the same district, from which I extract the following :—"The Himalayan Vulture-eagle, though often seen by two and three at a time, is not gregarious; they feed on offal and carrion, and like the kite (*Milvus cheela*) will carry off portions of flesh in their talons and devour them on the wing. They are wary birds, and will not descend to a bait as long as they perceive any person on the watch. * * * When pressed by hunger, however, which in these regions must sometimes be the case, he becomes much bolder and is more regardless of danger, though still somewhat cautious in his approach to man. If flesh be left exposed unwatched, he does not scruple to take his share, using the utmost despatch, and casting a keen glance around, as if conscious of the theft and fearful of detection. On alighting, the attitude and particularly the gait in walking very strongly resemble those of *Neophron percnopterus*, the head and neck being held rather erect, and the feet in walking lifted high off the ground. The only sound I have heard them emit is a hoarse croaking note uttered when angry. They moult once in the year, during the months of May, June, and part of July. I have occasionally seen them soaring round in company with the Kite and *Neophron percnopterus*, while the Pondichery and Indian Vultures (*Vultur ponticerianus* and *Vultur indicus*) were feasting on a carcase in the depth of the glen below. They select some retired and nearly inaccessible cliff or ledge of rock whenever they seek to build their nests, which they commence in April, and the young are ready to take wing about the end of June."

Similar localities to the above seem always to be chosen by the Bearded Gypaëte for the purposes of nidification. The habits of the species in this respect, as observed in the Alps, are thus recorded by M. F. Von Tschudi, in his work on "Animal Life in the Alps," from which I have already quoted :—"It builds its nest in clefted summits of the moun-

tain and on inaccessible ledges of the highest rock walls. These eyries may often be discerned from considerable distances, and are well known to dwellers in the mountains, though they are for the most part unapproachable and beyond the reach even of musket-balls. Their construction is simple but very ingenious; the sub-stratum is formed of a mass of straw, fern, and stalks, laid crossways one upon another. The nest, which rests upon this under-layer, is composed of branches woven into the shape of a wreath and lined with down and moss, and the contents of this part alone would fill the largest hay-cloth. Very early in the year the female lays three or four white eggs spotted with brown, of which only two are generally hatched." The brown spots upon the egg of the Læmmer-Geyer alluded to in the above passage are of a rufous or ferruginous tint, and the white ground of the egg is often tinged with a similar hue; but this varies much in different specimens, as does also the number and intensity of the ferruginous spots.

The iris in this species is a light yellow, but the sclerotic coat which is visible as a second ring, exterior to that of the iris, is of a vivid orange red. The feet are of dark flesh colour, slightly tinged with purple.

Several figures have been published of the Bearded Gypaëte in its adult plumage; the most characteristic of those with which I am acquainted is in Gray's "Genera of Birds," pl. 1. The immature bird is figured in Meyer and Wolf, pl. 1; but I give this latter reference on the authority of "Strickland's Synonyms," not having been able personally to verify it.

The egg is represented in Baedeker's work on "European Oölogy," pl. 9, fig. 3.

SPECIMENS OF *GYPÆTUS BARBATUS*.

Skeleton ♀	Pyrenees.....	(G) Mr. Verreaux.
No. 1. ♂ adult ...	{ Valley of Magna, near Nice	Presented by J. C. Back- house, Esq.
No. 2. adult	Island of Sardinia	
No. 3. adult ...	{ Bagnerre de Bigore, South of France	(G) Mr. Philippe.
No. 4. ♂ adult ...	{ Province of Constantine, Algeria	
No. 5. nestling ...	Djebel Delema, Algeria...	(G) Rev. H. B. Tristram.
No. 6. ♂ immature...	Algeria	(G) Mr. Verreaux.
No. 7. ♀ immature...	Ditto	(G) Rev. H. B. Tristram.
No. 8. ♂ immature...	Asia Minor	(G) Zoological Society.
No. 9. ♂ nestling ...	Erzeroom.....	(G) Mr. Verreaux.
No. 10. adult ...	{ Kailas Pass, South Western Himalayah...	(G) Mr. Warwick.
No. 11. immature...	Ditto	
No. 12. immature...	Landom Range, Himalayah	(G) Major T. S. Hors- brough.
No. 13. adult	Himalayah Mountains.....	(G) Mr. Warwick.

GYPÆTUS MERIDIONALIS (Bonaparte.)

SOUTHERN GYPÆTE.

Dr. Rüppell, in his work entitled "Systematische Uebersicht der Vögel Nord-ost Afrikas," gives the following information respecting this species:—"Both species (*barbatus* and *meridionalis*) perfectly correspond in the colouring of the plumage, as well as in the proportions of size. The characteristics by which *meridionalis* is distinguished, being that the tarsi for above a quarter of their length in front and on the inside, and for above half their length at the back and on the outside, are unfeathered and reticulated; and that the region of the corner of the mouth from thence extending below the

eyes as far as the region of the ear is covered with a white woolly down without the admixture of any of those black bristles which are found in *Gypaëtus barbatus* at every age. * * * The Southern Gypaëte is mostly found upon the high mountains of Abyssinia, also in Nubia, Egypt, and Arabia Petrea." This species also inhabits the mountainous districts of Southern Africa.

Dr. Roth, in a manuscript report quoted in the Catalogue of the East India Company's Museum, speaks of this species in the following terms:—"A very common bird about Angollallah and Anhober, in Abyssinia; it is not so timid as the solitary specimens of its family in Europe; it comes not into the compounds, but still it hovers about in the near vicinity of the towns and villages. Smells dreadfully from its mode of living; takes a great quantity of water."

In Bruce's Abyssinian Travels, a description is given of a specimen shot by him on Mount Lamalmon, which had robbed the travellers' servants of some boiled goat's flesh on which they were about to dine; a species of pecculation to which its Himalayan congener is said by Mr. Hodgson to be also addicted.

The colouring of the feet and eyes in this species appears to resemble that of the same parts in *Gypaëtus barbatus*. Dr. Rüppell speaks of the feet of the Southern Gypaëte as "blueish," and the colour of the eye is described in the "Voyage en Abyssinie," edited by Mons. des Murs and others for the French Government, in the following terms:—"Iris isabelle, à cornée opaque rouge de feu."

Mr. Ayres, in transmitting a young male of this species from Natal, writes as follows:—"The Læmmer-Geyers are not at all plentiful here; they are very seldom seen on the coast, being principally confined to the precipitous country more inland. * * * They sail slowly about in search of their food, generally singly, but occasionally in pairs; their flight much resembles that of the larger falcons. * * * They swallow good-sized bones—the stomach of the bird I shot was

crammed with them, evidently swallowed without any meat—the largest of these bones was part of the vertebræ of an ox.

* * * A good quantity of the hair of the rock rabbit (*Hierax capensis*) was also found in this bird's stomach. The iris in this species is double, the outer ring broad and bright scarlet, the inner ring light greyish brown—the eye is very small for the size of the bird—bill pale, cere and base blueish, tarsi and feet ash-colour."

The adult bird of this species is figured in pl. 1 of Dr. Rüppell's work on the "Birds of North-East Africa," from which I have already quoted.

SPECIMEN OF *GYPÆTUS MERIDIONALIS*.

- No. 1. ♂ adult..... Lamalmon Mountains, Abyssinia... Mr. Verreaux.
 No. 2. ♂ immature ... Natal Mr. Ayres.

ADDENDUM.

Since the article on *Polyboroides radiatus* was in print (vide p. 12), the Norwich Museum has received two adult specimens of the allied Madagascar species (*P. madagascariensis* of Lesson) presented by Edward Newton, Esq., and Dr. Mellor, by whom they were obtained in the island of Madagascar. Mr. Newton remarks that he "observed in a freshly skinned specimen that the legs bend back in the same manner as described by Mr. Ayres when writing of its congener *Polyboroides typicus*." Vide "Notes of a second visit to Madagascar," in the Ibis, vol. 5, p. 338.

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